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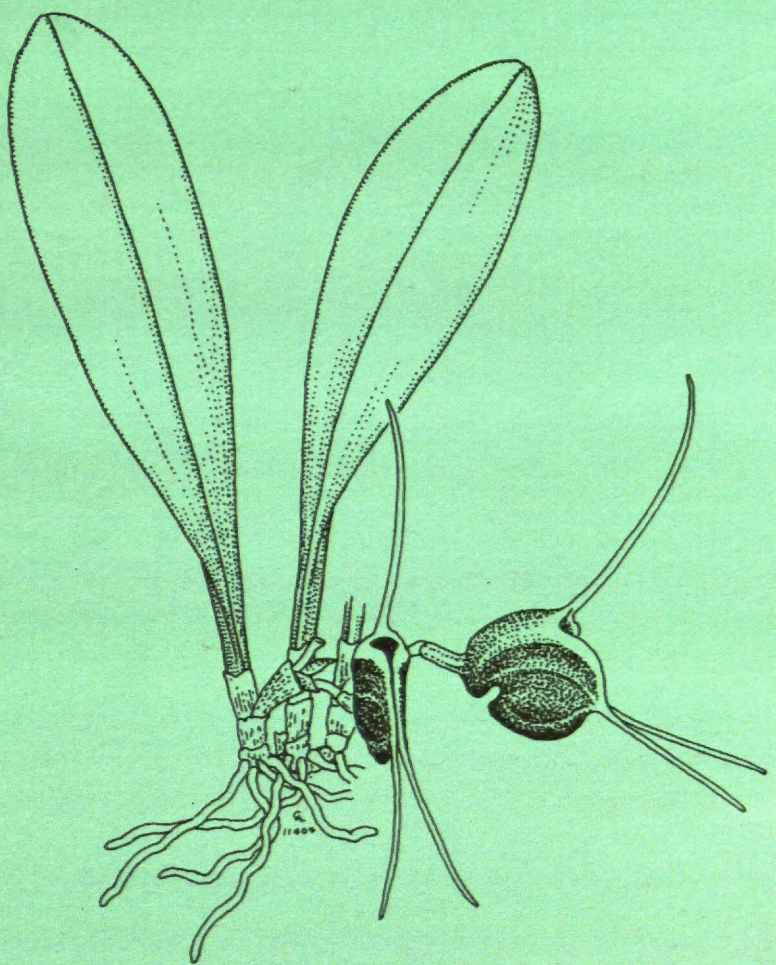
ICONES PLEUROTHALLIDINARUM
XIX

# SYSTEMATICS OF MASDEVALLIA PART ONE



Missouri Botanical Garden

ICONES PLEUROTHALLIDINARUM
XIX

# SYSTEMATICS OF MASDEVALLIA PART ONE

## M. Subgenus POLYANTHA
## Section ALATICAULES
## Section POLYANTHAE

Carlyle A. Luer

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Missouri Botanical Garden

MONOGRAPHS IN SYSTEMATIC BOTANY
FROM THE MISSOURI BOTANICAL GARDEN

Volume 77

Published in January 2000 in an edition
of 1200 copies.

ISSN 0161-1542
ISBN 0-915279-80-0

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Printed in the U.S.A. by Coastal Printing, Inc.,
Sarasota, FL
Composed at 3222 Old Oak Drive, Sarasota, Florida
with WordStar 7.0
Typeset with a Texas Instruments microLaser Plus

Copies of this book are available through
Missouri Botanical Garden
MBG Press Orders
4344 Shaw Blvd.
St. Louis, MO 63110-2291, U.S.A.
http://www.mobot.org

# FOREWORD

As *Systematics of Dracula* (*Icones Pleurothallidinarum* -10, 1993) was a condensation of *Thesaurus Dracularum* (Missouri Botanical Garden, 1988-1993), so will *Systematics of Masdevallia* (*Icones Pleurothallidinarum* -19, 2000, the first part of four) be a condensation of *Thesaurus Masdevalliarum* -1 through 19, Verlag Helga Königer, Munich, Germany, 1984-1995, and its sequel *A Treasure of Masdevallia* (Missouri Botanical Garden, begun in 1996).

The format of *Systematics of Masdevallia* differs from that of the previous publications of *Icones Pleurothallidinarum*. A change was desired to prevent this treatment from becoming obsolete before it is completed. Loose-leaf pages would solve the problem, but they are unpopular with many users. Therefore, we offer a compromise: a different format in both a bound edition (paper-back and perfect bound), and a loose-leaf edition.

The odd-numbered side of each double-sided page consists of the familiar, complete format which includes taxonomic nomenclature, synonymy, description, specimen citations, a distribution map, and discussion. A pen and ink illustration fills the reverse, or even-numbered side. When desirable, additional text and illustrations follow, but parts of no two species will appear on the same page.

At a later date, subsequently published species or inevitable, major corrections can be inserted where desired, and infrageneric taxa can be moved or rearranged alphabetically or taxonomically and reassembled. This maneuver will be easily accomplished in the loose-leaf edition. Bound editions may be broken to accomplish the same sequence.

The genus *Masdevallia* consists of over 400 species that can be divided into ten relatively well-defined subgenera and sections of very unequal numbers of species. Infrageneic taxa will be chosen so that each *Icones* will contain approximately 100 species on about 250 pages, near the practical maximum. The total numbers immediately become obvious. *Icones*-19, Part One, contains a ten-page introduction to the genus, but only subgenus *Polyantha* with 104 currently accepted species on 264 pages with 132 plates. Acknowledgments, references, a glossary, and a combined index to all four parts will be reserved for the final Part Four.

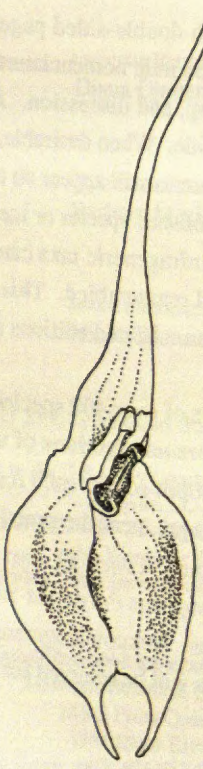
Abbreviations of the names of authors are in accordance with *Authors of Plant Names*, R.K. Brummitt & C.E. Powell, Royal Botanic Gardens, Kew, 1992.

Abbreviations of the names of herbaria are in accordance with *Index Herbariorum*, P.K. Holmgren. N.H. Holmgren & L.C. Barnett, New York Botanical Garden, 1990.

Abbreviations of the titles of publications are in accordance with *Botanico-Periodicum-Huntianum* (BPH), G.H.M. Lawrence, A.F.G. Buchheim, G.S. Daniels & H. Dolezal, Hunt Botanical Library, Pittsburgh, 1968.

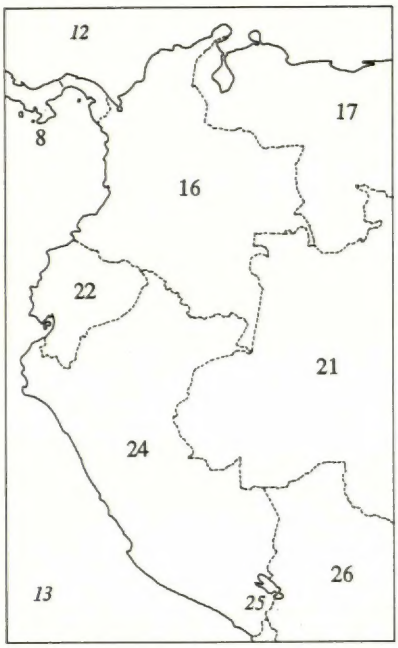
The illustrations are selected from a large accumulation of evolving styles made over a 25 year period. Some of the earliest illustrations have been discarded. Those illustrations inked by Stig Dalström since 1992 bear his initial-logo beneath my initials as the illustrator, except Plate 35, *Masdevallia dunstervillei*, an illustration by Dunsterville.

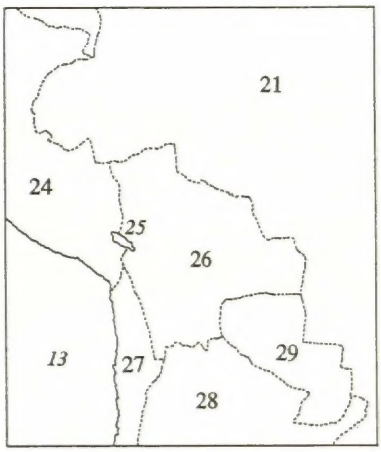
Proofreading of Part One was done by Amy Scheuler McPherson and reading of the text for correctness was done by Mr. & Mrs. H. Phillips Jesup.



# A TINY GAZETTEER

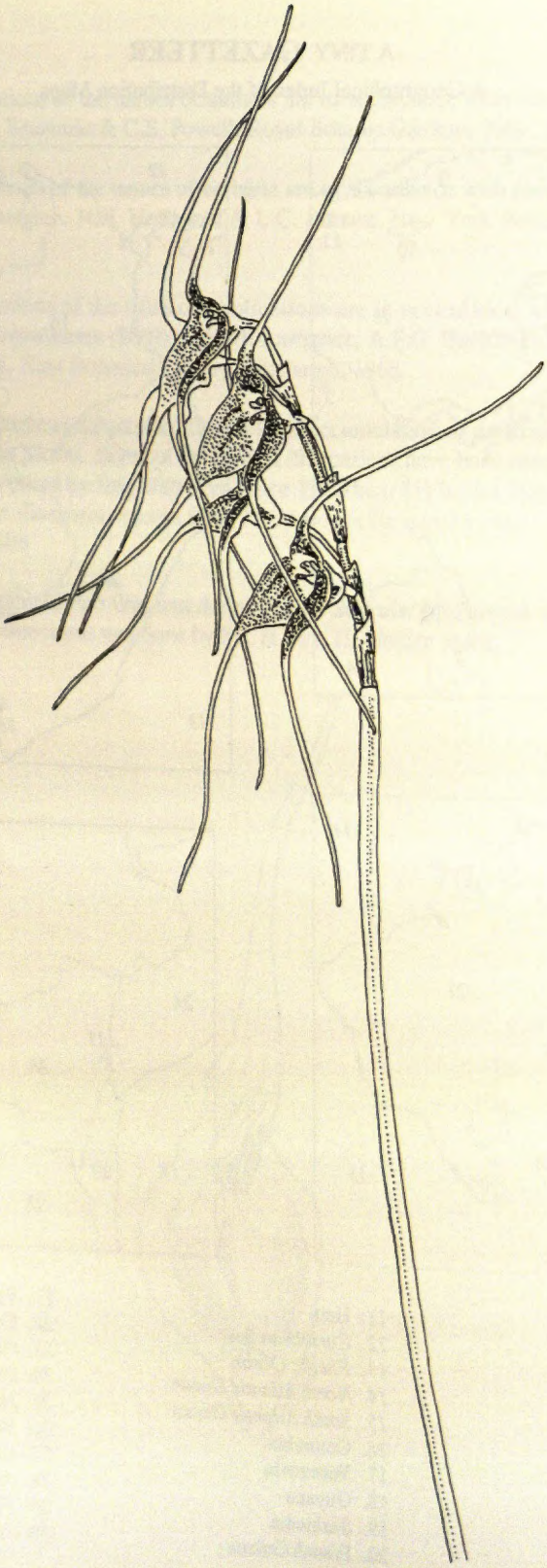
## A Geographical Index of the Distribution Maps






1. Mexico
2. Guatemala
3. Belize
4. Honduras
5. El Salvador
6. Nicaragua
7. Costa Rica
8. Panama
9. Cuba
10. Jamaica
11. Haiti
12. *Caribbean Sea*
13. *Pacific Ocean*
14. *North Atlantic Ocean*
15. *South Atlantic Ocean*
16. Colombia
17. Venezuela
18. Guyana
19. Suriname
20. French Guiana
21. Brazil
22. Ecuador
23. *Galapagos Islands*
24. Peru
25. *Lake Titicaca*
26. Bolivia
27. Chile
28. Argentina
29. Paraguay
30. Uruguay

• indicates a locality  •? indicates a questionable locality  o indicates an unknown locality



# SYSTEMATICS
# OF
# MASDEVALLIA
## PART ONE

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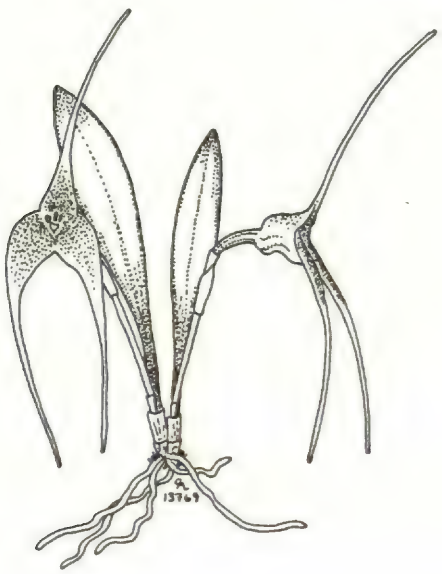


*Masdevallia pinocchio* Luer & Andreetta, Province of Napo, Ecuador, near Río Salado, altitude 1300 meters above sea level, 5 October 1984, photo by Alexander C. Hirtz. The passively motile labellum is "up" in the flower on the left, and "down" in the flower on the right.

SYSTEMATICS OF THE GENUS

# MASDEVALLIA

## INTRODUCTION

ABSTRACT

The genus *Masdevallia* Ruiz & Pavón is described, and keys to the subgenera and sections are given. PART ONE contains the subgenus *Polyantha* and the two sections *Alaticaules* and *Polyanthae*. This subgenus consists of about one-fourth the species of the genus. All the species are characterized by lips divided by marginal folds into an epichile and a hypochile.

Each species is described and illustrated with one or more black and white drawings. Distribution maps are included. Types and representative specimens are listed in the distribution, followed by a discussion of each species. No page includes more than one species.

Names of new taxa: (validation of new taxa not in PART ONE on page 8)

**Masdevallia** subgen. **Cucullatia** Luer, subgen. nov.
**Masdevallia** subgen. **Fissia** Luer, subgen. nov.
**Masdevallia** subgen. **Nidificia** Luer, subgen. nov.
**Masdevallia** subgen. **Polyantha** Luer, stat. nov.
**Masdevallia** subgen. **Pygmaeia** Luer, subgen. nov.
**Masdevallia** subgen. **Scabripes** Luer, subgen. nov.
**Masdevallia** subgen. **Volvula** Luer, subgen. nov.
**Masdevallia** sect. **Dentatae** Luer, stat. nov.
**Masdevallia** sect. **Durae** Luer, stat. nov.
**Masdevallia** subsect. **Coaetaneae** Luer, subsect. nov.
**Masdevallia** subsect. **Pteryglophorae** Luer, subsect. nov.
**Masdevallia** subsect. **Successiviflorae** Luer, subsect. nov.
**Masdevallia** subsect. **Zahlbrucknerae** Luer, subsect. nov.

*Masdevallia* is one of the largest in numbers of species of the 30-odd genera of the Pleurothallidinae, exceeded by *Lepanthes* Sw., *Pleurothallis* R.Br. and *Stelis* Sw. In popularity it is exceeded by none. The genus *Masdevallia* was proposed by the Spanish botanical explorers Ruiz and Pavón in 1794 in their first volume of *Florae Peruvianae et Chilensis Prodromus*. Species were slowly added to the genus for the next half century. During the last half of the nineteenth century, its popularity and commercial demands began to grow.

Numerous plants were collected by zealous collectors such as Hartweg, Roezl, Wallis and Warszewicz and dispatched to the European trade. Perhaps the most notable author of species of the genus at that time was John Lindley in London,

followed by Professor Reichenbach at Hamburg. During the last decade of the nineteenth century, Miss Florence Woolward assembled a collection of her paintings into a publication that became a cornerstone for appreciation of the genus. Details of this first century of discoveries are to be found in *A Treasure of Masdevallia* 22 (Luer, 1997).

Kränzlin assembled the next monographic treatment of the genus in 1925, but the twentieth century did not witness a resurgence of popularity of the genus until after World War II. As the explosion of "progress" exploited regions heretofore inaccessible, a flood of new species reached the attention of the eager botanical and horticultural world. Prior to 1975, the genus consisted of 166 accepted species, although 435 epithets had been attributed to the genus. This large number included those species that were subsequently removed to other genera (e.g., *Dracula* Luer, *Dryadella* Luer, *Porroglossum* Schltr., *Scaphosepalum* Pfitz. and *Trisetella* Luer).

*Thesaurus Masdevalliarum*, a contemporary version of Miss Woolward's monograph, was begun in 1983. It was terminated in 1998, followed by *A Treasure of Masdevallia*. Today, the number of accepted species of *Masdevallia* exceeds 400 from a total of 850 names attributed to the genus. The number is still growing.

The center of distribution of the genus is in the high Andes of South America from Venezuela through Colombia, Ecuador, Peru and into Bolivia. Fewer than 50 species occur in Central America, and fewer than a dozen species occur in Brazil. None is known from the Antilles. The majority grow in the higher altitudes between 1500 and 2500 meters above sea level where nights are cool and humidity is high.

The genus has always been popular among hobbyists and horticulturists, not only because of the attractive flowers, but also because of the relative ease of cultivation. Details of cultivation are found in *A Masdevallia Cultural Guide* (Rhodehamel, 1988, 1993, 1998). Great interest in hybridization has recently arisen.

## MORPHOLOGY

All species of *Masdevallia* are characterized by an aerial leaf-bearing stem, the ramicaul (Stern & Pridgeon 1984), produced successively from a stout rhizome. The rhizome, or primary stem, is usually short so that a densely caespitose habit is formed, even when the rhizome is a little longer and ascending. In a few species, the rhizome is significantly elongated (i.e., *M. assurgens*, *M. paivaeana*, *M. racemosa* and *M. scandens*).

The ramicaul, called the "secondary stem" by most authors for over a century, is usually stout and it is significantly shorter than the leaf it bears. Contrary to the opinion of some, the simple term "stem" is too ambiguous for use in the Pleurothallidinae, because there are several structures to which the term "stem" can be more aptly applied. In most species of *Masdevallia*, the most obvious structure to which the term "stem" would apply is the peduncle, the flower-bearing stem.

The leaf is coriaceous in texture, from relatively thin to very thick and fleshy, or extremely rigid. It is variable in shape, usually elliptical and petiolate, and the size and shape can vary within a species. The ramicaul with its leaf is erect or suberect, and truly pendent in only one species, *M. caesia*.

The peduncle (the inflorescence-bearing stem) emerges laterally with an ill-defined ring, the annulus, usually near or at the base of the ramicaul, or occasionally higher near the middle, but always a considerable distance below the apex, the leaf-

stem abscission layer. It is smooth in all species except in *M. bicornis*, in which it is shaggy-scabrous. The inflorescence is single-flowered, or few- to many-flowered with the flowers produced simultaneously or successively, densely or distantly on the rachis. The peduncle is terete (round in cross section) in most species, but it is triquetrous (triangular in cross section) in the large section *Alaticaules*. In some species characterized by triquetrous peduncles (e.g., *M. infracta*), terete peduncles, or both terete and triquetrous peduncles, sometimes occur.

The pedicel (the flower-bearing stem) varies in length. In some instances in section *Coriaceae* it is thicker and longer than the peduncle that bears it. The subtending floral bract is usually tubular, but it is commonly inflated in subgenus *Amanda*. A large, cucullate floral bract that engulfs the ovary and the base of the flower characterizes subgenus *Cucullatia*.

The ovaries of all the species are trivalved, and each valve is ribbed to some degree. In many species the ovaries are "smooth," the ribs being only barely visible externally, or shallow grooves between valves. Species with the ribs manifested by crests or some other external features such as papillae are characteristic for subgenera *Amanda, Fissia* and *Pygmaeia*.

The sepals are the most conspicuous parts of the flower. They display the greatest diversities is size, shape, texture, and color of all the floral parts. They are almost always the most important factor in specific diagnoses. In section *Coriaceae*, the sepals are thick and fleshy. The various degrees of connation between the sepals, from barely connate at the base to form the shallow cup of a widely spread flower, to deeply connate to form a cylindrical tube, are used to define some infrageneric taxa (e.g., *Saltatrices*). The dorsal sepal is free from the lateral sepals in subgenera *Fissia* and *Meleagris*. The inner surfaces of the sepals vary from glabrous to pubescent or verrucose. The apices are usually contracted into tails, but they are tailless in species scattered in a few infrageneric taxa (e.g., subsection *Aphanes* and section *Racemosae*).

The calliferous petals, long considered a hallmark of the genus, are small and inconspicuous, usually about the length of the column they flank. They are more or less waxy or cartilaginous in consistency, with a callus along the labellar half and often producing a marginal angle or a kind of process or "tooth" somewhere between the middle and the base. Occasionally in very small species with membranous petals (e.g., *M. bangii*), the usual tiny callus may be totally lacking. In some clones of *M. campyloglossa* a callus is also missing. The apex of the petal varies from acute, obtuse, to dentate. It is commonly lobulated or toothed in varying degrees and proportions within a species, within a population, or on the same plant. The apex is channeled and verrucose in subgenus *Cucullatia*.

The lip is also small, although it often exceeds the column and petals in length. It is most often oblong, thin or thick, with or without a callus at the apex, and the apex may be smooth or verrucose, entire or denticulate. The disc (the upper surface of the lip) is usually sulcate to some degree between a pair of low, longitudinal calli. In some infrageneric taxa the calli are absent, and in others they are developed into a pair of "eyebrow-like" calli near the middle. In some taxa, these calli are developed into oblique, marginal folds that divide the lip into two portions, an epichile and a hypochile. An entire lip is seen in subgenus *Masdevallia* and a divided lip is found in several subgenera. In sections *Coriaceae* and *Durae* the lip is simple but thick and verrucose, sometimes with basal recesses that could be nectariferous.

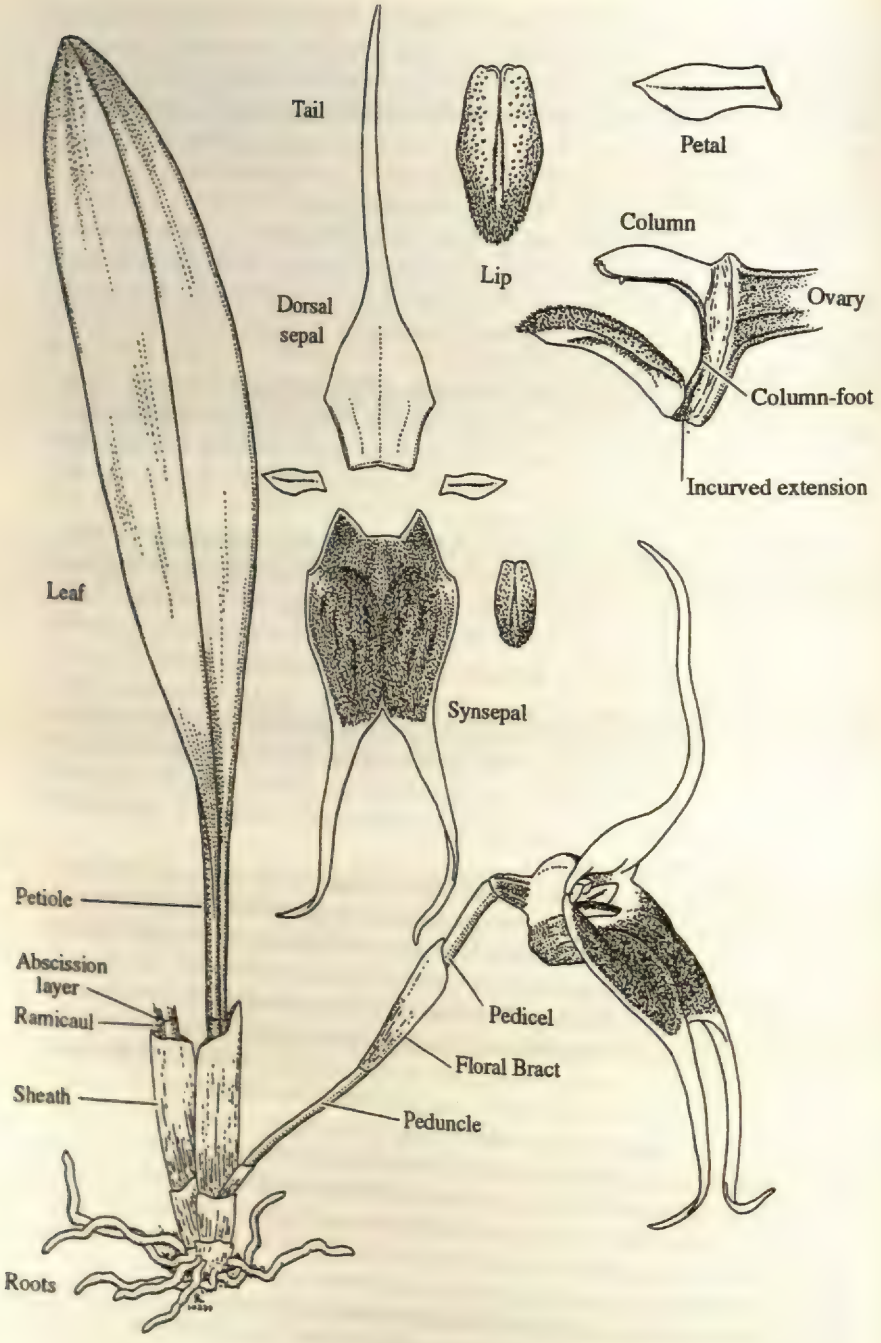



Fig. 1. *Masdevallia elephanticeps* (Subgenus *Masdevallia* section *Coriaceae*).

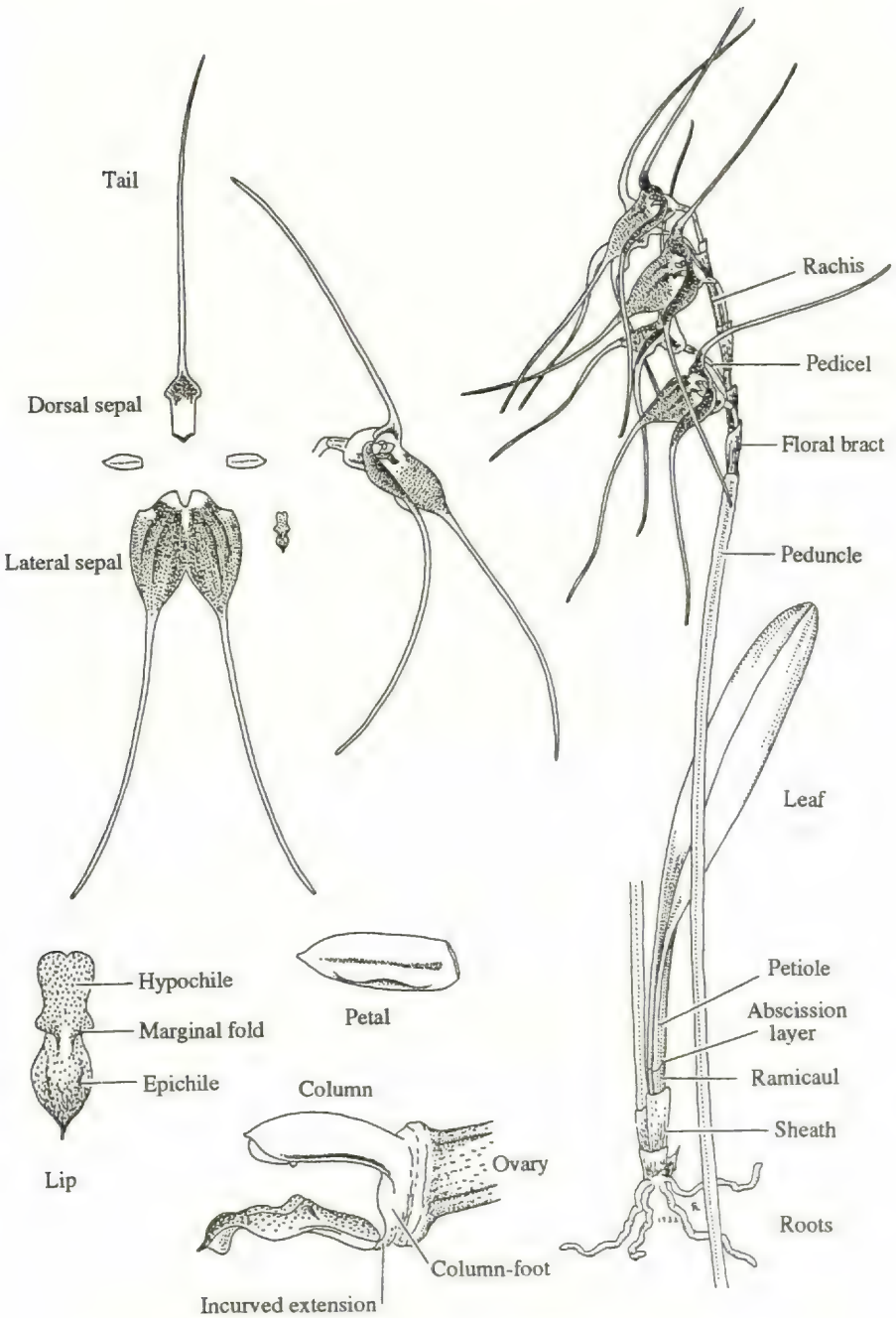



Fig. 2. *Masdevallia sceptrum* (Subgenus *Polyantha* section *Alaticaules*).

The column is very much the same in all species of *Masdevallia*. It is semiterete with a ventral anther more or less hooded by the apex of the column. Two ovoid pollinia are connected to a viscidium by granular, elastic caudicles. The rostellum and stigma are present behind or below the anther. The base of the column is prolonged into a thickened foot at the apex of the ovary, and from the apex of the foot there is a free, incurved extension of various lengths to which the lip is hinged.

In summary, the genus *Masdevallia* is distinguished from all others in the subtribe by a combination of the following six characters: ramicauls shorter than the leaves they bear; inflorescences borne laterally from the ramicaul with an annulus a considerable distance below the abscission layer; petals callous, especially on the labellar half or margin (with rare exceptions in the smallest flowers); the lip flexibly hinged to the tip of an extension of the column-foot that is free from the ovary; the shaft of the column semiterete with a ventral anther, rostellum and stigma; and two pollinia.

## TAXONOMY

In order to sort this large number of interrelated species into manageable units of more or less closely related species, it is necessary to divide and subdivide the genus into subgenera, sections and subsections (Luer, 1986). Easily recognized morphological features should be sought for the keys.

The most obvious physical feature of any pleurothallid, or orchid, is the habit, but this is not a practical primary key-feature. Very few species can be recognized by their habit alone, *e.g.*, the few species with a repent habit; the unique, pendent, bluish leaves of *M. caesia*; and the erect, long-petiolate, bluish leaves of *M. torta*. Many of the small, densely caespitose species are similar in habit to many of those in *Pleurothallis* subgenus *Specklinia*. Vegetatively, many species are so similar to each other that without an inflorescence, not even the subgenus is recognizable.

The kind of inflorescence is important, but its use is limited primarily because single-flowered peduncles, and simultaneously or successively flowered racemes occur within more than one infrageneric taxon. However, the inflorescence of section *Masdevallia* is always single-flowered. The sepals are wildly diverse. Although small, the kind of lip is one of the most important morphological features to use in segregating taxa into related groups. Another practical key-feature is the surface of the ovary, whether it be crested, lamellate or smooth, followed by characters of the inflorescence, sepals and petals, more or less in that order.

Some species are without obvious relations (e.g., *M. caudivolvula*). They exhibit combinations of features that make their placement anywhere doubtful. There are some groups very small in number that are included in larger groups merely for convenience because of similar features, although they probably are not closely related. One solution is to expand the number of infrageneric taxa supported by information that will be gained from DNA research.

At present, the most isolated groups of species are recognized as subgenera. Some include species that appear similar, although they may prove not to be closely related. Studies of DNA will confirm or deny some of the proposed infrageneric taxa. The study of the DNA of *M. pelecaniceps (Luerella pelecaniceps)* has indicated that it is a taxon not closely related to *Masdevallia*.

## MASDEVALLIA

**Masdevallia** Ruiz & Pav., Fl. Peruv. Chil. Prodr. 122, 1794.

Type: *Masdevallia uniflora* Ruiz & Pav.

Ety.: Named in honor of José Masdevall, physician in the court of Charles III of Spain.

**Plants** perennial, very small to large, weak to robust, epiphytic, lithophytic to terrestrial, the rhizome very short to elongate between aerial stems (ramicauls); roots few to many, slender to coarse or fleshy. Ramicauls ascending to erect, rarely descending, slender to stout, non-pseudobulbous, shorter than the leaf, unifoliate, partially or completely enclosed by 2-3 imbricating sheaths from near the base, the inflorescence emerging laterally with an annular ring (annulus) from near the base or near the middle, a considerable distance below the apex (the leaf-stem abscission layer). **Leaf** erect in relation to the ramicaul, thinly to thickly coriaceous, smooth, green or dark green, uncommonly suffused with purple, elliptical to narrowly elliptical or obovate to narrowly obovate, the apex acute, obtuse to rounded, shallowly notched with a mucro in the sinus, the base broadly or narrowly cuneate into a more or less channeled petiole. **Inflorescence** a solitary flower, a succession of single flowers, or a successively or simultaneously few- to many-flowered raceme, lax or congested, longer or shorter than the leaf, the peduncle slender to stout, short or long, round to triangular in cross section, shaggy-scabrous in one species, with 1-3 bracts, when triquetrous only basal; floral bract thin and tubular to coarse and cucullate; pedicel slender to stout, longer or shorter than the floral bract; ovary smooth, lamellate, crested, verrucose to papillose, trivalvate with the ribs smooth, carinate to crested; **sepals** conspicuous, membranous to thickly fleshy, variously colored, smooth to verrucose or pubescent, broad to narrow, acute to obtuse, nearly free to deeply connate, usually with the apices contracted into elongated segments (tails) that are rarely clavate; **petals** inconspicuous, thin to cartilaginous, usually longitudinally callous, often produced into a tooth on the labellar half or margin, at or above the base; **lip** usually inconspicuous, thin to thick, ligulate to pandurate, the apex acute, obtuse to rounded, smooth to verrucose, with or without a callus, entire or denticulate, the disc smooth or with a pair of longitudinal calli, often extending over the margins with oblique folds that create an epichile and a hypochile, the base truncate to cordate, hinged on the end or beneath; **column** semiterete, the anther ventral, more or less hooded, the apical margins of the column entire to lightly toothed, the rostellum retrorse, the pollinia 2, yellow, pyriform, with elastic, more or less granular caudicles, the stigma ventral, the base of the column developed into a column-foot with the apex of the ovary, often elongated beyond the ovary, with an incurved extension to which the lip is attached.

The genus *Masdevallia* is presently divided into 10 subgenera, 13 sections and 13 subsections. Thumbnail sketches of these infrageneric taxa have been published in *A Treasure of Masdevallia*, number 24 (Luer, 1999).

### Subgenera, Sections and Subsections of Masdevallia

Subgenus *Amanda*, type: *M. amanda*
Subgenus *Cucullatia*, type: *M. cucullata*
Subgenus *Fissia*, type: *M. picturata*
Subgenus *Masdevallia*, type: *M. uniflora*
  Section *Amaluzae*, type: *M. amaluzae*
    Subsection *Amaluzae*, type: *M. amaluzae*
    Subsection *Zahlbrucknerae*, type: *M. zahlbruckneri*
  Section *Coriaceae*, type: *M. coriacea*
  Section *Dentatae*, type: *M. collina*
  Section *Durae*, type: *M. dura*
  Section *Masdevallia*, type: *M. uniflora*
    Subsection *Caudatae*, type: *M. caudata*
    Subsection *Coccineae*, type: *M. coccinea*
    Subsection *Masdevallia*, type: *M. uniflora*
    Subsection *Oscillantes*, type: *M. wageneriana*
    Subsection *Saltatrices*, type: *M. saltatrix*
  Section *Minutae*, type: *M. minuta*
  Section *Racemosae*, type: *M. racemosa*
  Section *Reichenbachianae*, type: *M. reichenbachiana*
  Section *Triotosiphon*, type: *M. bangii*
Subgenus *Meleagris*, type: *M. meleagris*
Subgenus *Nidificia*, type: *M. nidifica*
Subgenus *Polyantha*, type: *M. schlimii*
  Section *Alaticaules*, type: *M. melanoxantha*
    Subsection *Alaticaules*, type: *M. melanoxantha*
    Subsection *Coaetaneae*, type: *M. sceptrum*
  Section *Polyanthae*, type: *M. schlimii*
    Subsection *Polyanthae*, type: *M. schlimii*
    Subsection *Successiviflorae*, type: *M. lata*
Subgenus *Pygmaeia*, type: *M. pygmaea*
  Section *Aphanes*, type: *M. aphanes*
    Subsection *Aphanes*, type: *M. aphanes*
    Subsection *Pterygiophorae*, type: *M. pterygiophora*
  Section *Pygmaeae*, type: *M. pygmaea*
Subgenus *Scabripes*, type: *M. bicornis*
Subgenus *Volvula*, type: *M. caudivolvula*

## KEY TO THE SUBGENERA AND SECTIONS OF *MASDEVALLIA*

1 Lip undivided, with or without calli ..... 2
1' Lip divided by marginal folds into two parts, an epichile and a hypochile..... 19

2 Rhizome elongated, plant repent ..... 3
2' Rhizome abbreviated, plant caespitose ..... 4

3 Inflorescence racemose; lateral sepals tailless..... *Masdevallia* sect. *Racemosae*
3' Inflorescence single-flowered; sepals caudate..... subsect. *Masdevallia*

4 Peduncle scabrous..... *Scabripes*
4' Peduncle smooth ..... 5

5 Inflorescence 1-flowered ..... 6
5' Inflorescence 2- or more-flowered, or successively flowered..... 12

6 Ovary variously ornamented ..... 7
6' Ovary not ornamented, but may have low carinae or ribs..... 8

7 Ovary carinate-crested; sepals tailless or contracted into short, thick tails.....
..... *Pygmaeia* sect. *Aphanes*
7' Ovary spiculate to papillose; sepals caudate..... *Pygmaeia* sect. *Pygmaeae*

8 Petals without a protruding process ..... 9
8' Petals with a protruding process..... 11

9 Sepals deeply connate into a tube constricted above the middle.....
..... *Masdevallia* sect. *Triotosiphon*
9' Sepals not connate into a constricted tube..... 10

10 Lip thick, verrucose at the apex..... *Masdevallia* sect. *Coriaceae*
10' Lip thin, smooth or microscopically verrucose at the apex.....
..... *Masdevallia* sect. *Reichenbachianae*

11 Petals with a small callus above or along the margin between the middle and basal third..... *Masdevallia* sect. *Minutae*
11' Petals with a well-developed, protruding, marginal process.....
..... *Masdevallia* sect. *Masdevallia*

12 Sepals free, with the bases of the lateral sepals forming a shallow cup with a curved column-foot; lip entire or with ill-defined marginal folds.....
12' Sepals variously connate ..... subgen. *Meleagris*

13 Ovary variously ornamented ..... 13
13' Ovary not ornamented, but costate, ribbed or smooth..... 14

14 Ovary crested; lateral sepals tailless..... *Pygmaeia* sect. *Aphanes*
14' Ovary and sepals echinate; sepals caudate-clavate..... *Pygmaeia* sect. *Pygmaeae*

15 Petals with 2 distinct or 2 joined, descending, basal processes.....
.....*Masdevallia* sect. *Dentatae*
15' Petals without a descending, basal process.....16

16 Sepals thickly rigid; lip thick, verrucose at the apex, with basal concavities.....
.....*Masdevallia* sect. *Durae*
16' Sepals not thickly rigid; lip thin to thick, smooth or microscopically verrucose at the apex, not with basal concavities.....17

17 Inflorescence more or less lax, prostrate, horizontal or ascending, rarely erect;
.....*Masdevallia* sect. *Amaluzae*
17' Inflorescence more or less congested, always erect.....18

18 Petals with a protruding callus above or along the margin between the middle and basal thirds.....*Masdevallia* sect. *Minutae*
18' Petals with or without a low, marginal callus.....
.....*Masdevallia* sect. *Reichenbachianae*

19 Inflorescence 1-flowered.....20
19' Inflorescence 2- or more-flowered.....24

20 Floral bract greatly inflated, engulfing pedicel, ovary and the base of the flower; petals with the tips verrucose.....*Cucullatia*
20' Floral bract not engulfing base of the flower; petals not with tips verrucose.....21

21 Ovaries with tortuous, undulate lamellae; sepals nearly free; petals sharply tridentate.....*Fissia*
21' Ovaries not with tortuous-undulate lamellae; sepals variously connate; petals not sharply tridentate.....22

22 Ovaries not carinate.....the few exceptions in sect. *Polyanthae*
22' Ovaries carinate.....23

23 Ovaries carinate-crested; sepals connate into a tube inflated below the middle with a long, curved column-foot.....*Nidificia*
23' Ovaries carinate; sepals not connate into an inflated tube, with thick, twisted tails.....*Volvula*

24 Peduncle triquetrous.....*Polyantha* sect. *Alaticaules*
24' Peduncle terete.....25

25 Ovary carinate-crested; raceme simultaneously flowered; petals serrated or with a marginal callus.....*Amanda*
25' Ovary not carinate; raceme simultaneously or more commonly successively flowered; petals with a marginal callus, never serrated.....
.....*Polyantha* sect. *Polyanthae*

## Rapid Identifier for Subgenera and Sections

| | *Peduncle* | *Raceme* | *Floral Bract* | *Ovary* | *Connation of Sepals* | *Sepaline Tails* | *Process of Petals* | *Lip Divided* |
|---|---|---|---|---|---|---|---|---|
| Subgen. **Amanda** | terete | simul. | infl. | + | + | + | 0, mostly serrate | + (0) |
| Subgen. **Cucullatia** | terete | 1-fl. | infl. | + | + | + | 0, tip verrucose | + |
| Subgen. **Fissia** | terete | 1-fl. | - | + | free | + 0 | + | + |
| Subgen. **Masdevallia** | | | | | | | | |
| Sect. **Amaluzae** | terete | succ. | - | + 0 | + | + | 0 | 0 |
| Sect. **Coriaceae** | terete | 1-fl. | - | - | + | + 0 | 0 | 0 |
| Sect. **Durae** | terete | succ. | - | - | + | + | 0 | 0 |
| Sect. **Dentatae** | terete | succ. | - | - | + | + | + | 0 |
| Sect. **Masdevallia** | terete | 1-fl. | - | - | + | + | + | 0 |
| Sect. **Minutae** | terete | 1,simul,succ. | - | - | + | + | + pointed | 0 |
| Sect. **Racemosae** | terete | simul. | - | - | + | 0 | 0 | 0 |
| Sect. **Reichenbachianae** | terete | 1,succ. | - | - | + | + | 0 | 0 |
| Sect. **Triotosiphon** | terete | 1-fl. | - | - | + | + | 0 | 0 |
| Subgen. **Meleagris** | terete | succ. | - | - | free | + | 0 | 0 |
| Subgen. **Nidificia** | terete | 1-fl. | - | + | + | + | + | + |
| Subgen. **Polyantha** | | | | | | | | |
| Sect. **Alaticaules** | triquetrous | succ. | - | - | + | + | + 0 | + |
| Sect. **Polyanthae** | terete | 1,simul,succ. | - | - | + | + | 0 | + |
| Subgen. **Pygmaeia** | | | | | | | | |
| Sect. **Aphanes** | terete | 1,succ. | - | + | + | + 0 | 0 | 0 |
| Sect. **Pygmaeae** | terete | 1,succ | - | + | + | + | + | 0 |
| Subgen. **Scabripes** | scabrous | succ. | - | - | + | + | + | 0 |
| Subgen. **Volvula** | terete | 1-fl. | - | - | + | + | 0 | + |

Key: **terete** = round in cross section; **triquetrous** = triangular in cross section; **1-fl.** = peduncle single-flowered; **simul.** = raceme simultaneously flowered; **succ.** = raceme successively flowered; **infl.** = inflated; - = not remarkable; for ovaries, + = carinate, lamellate, or verrucose; for sepals and petals, + = tail or tooth present, **0** = absent; for lip, + = lip divided by marginal folds into an epichile and hypochile, **0** = lip not divided by marginal folds into two parts.

### New Taxa Not Included in PART ONE

**Masdevallia** subsect. **Amaluzae** Luer, stat. nov.
Bas. sect. *Amaluzae* Luer, Monogr. Syst. Bot. 16: 18, 1986.
Type: *Masdevallia amaluzaa* Luer & Malo

**Masdevallia** subgen. **Cucullatia** Luer, subgen. nov.
Type: *Masdevallia cucullata* Lindl.
Inflorescentia uniflora, bractea floralis grandissima cucullata, petala ad apicem verrucosa canaliculatava.

**Masdevallia** sect. **Dentatae** Luer, stat. nov.
Bas.: subsect. *Dentatae* Luer, Monogr. Syst. Bot. 16: 48, 1986.
Type: *Masdevallia collina* L.O.Williams, Amer. Orchid Soc. Bull. 11: 93, 1942.

**Masdevallia** sect. **Durae** Luer, stat. nov.
Bas.: subsect. *Durae* Luer, Monogr. Syst. Bot. 16: 23, 1986.
Type.: *Masdevallia dura* Luer, Phytologia 39: 197, 1978.

**Masdevallia** subgen. **Fissia** Luer, subgen. nov.
Type: *Masdevallia picturata* Rchb.f.
Inflorescentia uniflora, sepala libera, petala tridentata, labellum plicatum, ovarium undulatum.

**Masdevallia** subgen. **Nidificia** Luer, stat. nov.
Type: *Masdevallia nidifica* Rchb.f.
Inflorescentia uniflora, sepala lateralia cum pede elongato columnae inflata, labellum plicatum.

**Masdevallia** subsect. **Pterygiophorae** Luer, subsect. nov.
Type: *Masdevallia pterygiophora* Luer & Escobar.
Inflorescentia uniflora, ovarium cristatum et sepalorum caudae breves crassaeque.

**Masdevallia** subgen. **Pygmaeia** Luer, subgen. nov.
Type: *Masdevallia pygmaea* Kraenzl.
Planta parva caespitosa, ovarium cristatum papillosum spiculatumve, labellum bicarinatum.

**Masdevallia** subgen. **Scabripes** Luer, subgen. nov.
Type: *Masdevallia bicornis* Luer, Monogr. Syst. Bot. 64: 128, 1997.
Pedunculus scabrosus.

**Masdevallia** subgen. **Volvula** Luer, subgen. nov.
Type: *Masdevallia caudivolvula* Kraenzl.
Inflorescentia uniflora, pedunculus teres, sepala encrassata caudis crassis volvulis, labellum divisum.

**Masdevallia** subsect. **Zahlbrucknerae** Luer, subsect. nov.
Type: *Masdevallia zahlbruckneri* Kraenzl.
Ovarium planum et petala cum processo basali.

# PART ONE

## M. Subgenus **Polyantha**
## Section **Alaticaules**
## Section **Polyanthae**

## MASDEVALLIA SUBGENUS POLYANTHA

The first species to be described and referable to this subgenus is the Brazilian *Masdevallia infracta*, published by Lindley in 1833. Poeppig and Endlicher added *M. bicolor* from Peru in 1838. Lindley and Reichenbach added several more binomials in the next decade, including, in 1846, Lindley's *M. polyantha* and *M. schlimii*. Published simultaneously, they are regarded now as minor variations of one species. Subsequent authors selected to use the epithet *M. schlimii* because it appeared on the page preceding *M. polyantha*.

*Masdevallia polyantha* was indicated by Reichenbach as belonging to "section" *Polyanthae* in 1874. In 1926, Kränzlin proposed the section *Alaticaules*, named for the "winged stems," which includes the majority of the species. Twenty-one binomials of related species were published prior to the twentieth century. Over 100 presently accepted species now constitute the subgenus.

Subgenus *Polyantha* is characterized by racemes of flowers, successive or simultaneous, with smooth petals and lips divided near the middle by marginal folds into an epichile and a hypochile. The subgenus is to be distinguished from subgenus *Amanda*, also characterized by simultaneously flowered racemes of flowers with divided lips, but with shallowly connate, more or less membranous sepals, often denticulate petals and with carinate-crested ovaries. All other taxa with divided lips are single-flowered.

**Masdevallia** subgen. **Polyantha** Luer, stat. nov.

Bas.: *Masdevallia* sect. *Polyanthae* Rchb.f., Gard. Chron. n.s., 1: 372, 1874.
Type: *Masdevallia polyantha* Linden ex Lindl. (=*Masdevallia schlimii* Linden ex Lindl.)
Ety.: From the Greek *polyanthos*, "many-flowered," referring to the inflorescence.

**Plants** small to large, weak to robust, caespitose; roots few to many, slender to coarse or fleshy. Ramicauls ascending to erect, slender to stout, shorter than the leaf, partially or completely enclosed by 2-3 imbricating sheaths, the inflorescence emerging at the base of a ramicaul. **Leaf** erect in relation to the ramicaul, usually thickly coriaceous, elliptical to narrowly elliptical or obovate to narrowly obovate, the apex acute, obtuse to rounded, shallowly notched at the apex, the base broadly to narrowly cuneate into a petiole. **Inflorescence** a successively flowered or a simultaneously flowered raceme, lax or congested, longer or shorter than the leaf, the peduncle slender to stout, triquetrous to terete, with 1-3 bracts; floral bracts thin, often imbricating; pedicel slender to stout, longer than the floral bract; ovary smooth, trivalvate with the ribs smooth to carinate; **sepals** more or less fleshy, variously colored, smooth to pubescent, verrucose or rugose, broad to narrow, acute to obtuse, variously connate into a cup or tube, with the apices contracted into tails; **petals** cartilaginous, usually longitudinally callous, uncommonly with a protruding process or tooth on the labellar margin at the base; **lip** usually thick, oblong, with marginal folds that divide the lip near the middle into an epichile and a hypochile, with the apex acute, obtuse to rounded, smooth to verrucose, with or without a callus, entire or denticulate, the disc shallowly sulcate between the marginal folds, the base truncate to subcordate, hinged on the end or beneath; **column** semiterete, the anther ventral, more or less hooded, the apical margins of the column entire to lightly toothed, the rostellum retrorse, the pollinia 2, the stigma ventral, the base of the column developed into a column-foot with the apex of the ovary, with an incurved extension to which the lip is attached.

Subgenus *Polyantha* is characterized by variously proportioned, thickly coriaceous leaves borne by short, stout ramicauls. The peduncle arises from the base of a ramicaul, and it is either triquetrous (triangular in cross section) or terete (round in cross section), characters upon which two sections are defined: *Polyanthae* with terete peduncles, and *Alaticaules* with predominantly triquetrous peduncles. However, individuals of some species characterized by triquetrous peduncles will occasionally produce terete peduncles. There is obviously an intimate relationship among some species with triquetrous peduncles and some species with terete peduncles.

Four species characterized by triquetrous peduncles sometimes produce partially terete or sometimes completely terete peduncles (*M. garciae*, *M. infracta*, *M. richardsoniana*, and *M. sprucei*). These species are treated in section *Alaticaules*, and are included in the keys of both section *Alaticaules* and section *Polyanthae*. In one species (*M. monogona*) the peduncle is partially ancipitous (single-edged in cross section).

*Masdevallia garciae* and *M. striatella* are a pair of troublesome species that appear very similar, but they are separated by characters of the peduncle and lip. The inconstantly triquetrous peduncle of *M. garciae* places it in section *Alaticaules*, and the terete peduncle of *M. striatella* indicates section *Polyanthae*, but the lip with the marginal folds, that are sometimes greatly reduced, suggest a species transitional with Central American section *Reichenbachiana* of subgenus *Masdevallia*.

In the subgenus the ovaries are commonly smooth, but in some plants the ovaries are ribbed or smooth-carinate. The sepals are variously connate into a cup or tube; the dorsal sepal is usually caudate; the laterals are variously caudate, but sometimes without tails, and more or less rigidly fleshy. The callus on the labellar half of the petals is only uncommonly developed into a protruding process. The lip is thick and divided by marginal folds into an epichile and a hypochile.

Species of the subgenus are found throughout the Andes and much of South America, with a few species of section *Polyanthae* in Central America. None occurs in the Antilles or southern Brazil and its neighbors to the south.

## KEY TO THE SECTIONS AND SUBSECTIONS

1 Peduncle triquetrous.....2 (sect. *Alaticaules*)
1' Peduncle terete.....3 (sect. *Polyanthae*)

2 Raceme successively flowered.....*Alaticaules* subsect. *Alaticaules*
2' Raceme simultaneously flowered.....*Alaticaules* subsect. *Coaetaneae*

3 Raceme successively flowered.....*Polyanthae* subsect. *Successiviflorae*
3' Raceme simultaneously flowered.....*Polyanthae* subsect. *Polyanthaea*

## POLYANTHA SECTION ALATICAULES

**Masdevallia** subgenus **Polyantha** section **Alaticaules** Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 105, 1925.

Lectotype: *Masdevallia melanoxantha* Linden & Rchb.f.

Ety.: From the Latin *alaticaulis*, "winged-stem," referring to the triquetrous peduncles.

Syn.: Subsection *Alaticaules* (Kraenzl.) Luer, Monogr. Syst. Bot. 16: 43, 1986.

In his monograph of the genus (1925), Kränzlin proposed section *Alaticaules*, citing section *Polyanthae* in synonymy. He created two "subsections," based on the length of the raceme, each with two further subdivisions,

This large section is characterized by a simultaneously or successively flowered inflorescence borne by a peduncle triangular in cross section. The sepals are more or less fleshy, usually with tails, and variously connate into a cup or tube. The petals are callous on the labellar half, rarely forming a descending process. The lip is thick and divided by marginal folds near the middle into an epichile and a hypochile.

Section *Alaticaules* is presently divided into two subsections based upon the raceme, whether it be simultaneously flowered or successively flowered. Some successively flowered species produce the flowers in rapid succession, so that sometimes the next flower is opening while the previous flower is still present.

**Alaticaules** subsect. **Alaticaules** (Kraenzl.) Luer, Monogr. Syst. Bot. 16: 43, 1986.

Lectotype: *Masdevallia melanoxantha* Linden & Rchb.f.

Syn.: Subsection *Longiscapae* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 105, 1925.

Lectotype: *Masdevallia melanoxantha* Linden & Rchb.f.

Ety.: From the Latin *longiscapus*, "with long scape," referring to the peduncle.

Syn.: Subsection *Breviscapae* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 106, 1925.

Lectotype: *Masdevallia maculata* Klotzsch & H.Karsten.

Ety.: From the Latin *breviscapus*, "with short scape," referring to the peduncle.

Syn.: Subsection *Alaticaules* (Kraenzl.) Luer, Monogr. Syst. Bot. 16: 43, 1986.

The majority of the species are included in this subsection. They are characterized by a successively flowered raceme borne by a triquetrous peduncle. The few species that occasionally produce a partially terete peduncle, or rarely a completely terete peduncle, are treated here, but they are included also in the key to the species of section *Polyanthae* for identification.

**Alaticaules** subsect. **Coaetaneae** Luer, subsect. nov.

Type: *Masdevallia sceptrum* Rchb.f., Gard. Chron. n.s., 7: 653, 1877.

Ety.: From the Latin *coaetaneus*, "maturing at the same time," referring to a simultaneously flowered inflorescence.

Pedunculum triquetrum et racemi flores coaetanei.

This subsection, characterized by a simultaneously flowered raceme, contains only a few species.

## BINOMIALS IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *ALATICAULES*

*M. acrochordonia* Rchb.f. = *M. trochilus*
**M. adrianae** Luer ..... Plate 1.
**M. aenigma** Luer & Escobar ..... Plates 2, 3.
**M. aguirrei** Luer & Escobar ..... Plate 4.
*M. albida* Lemaire = **M. infracta**
**M. amplexa** Luer ..... Plate 5.
**M. anfracta** Königer ..... Plate 6.
*M. aristata* Barb.Rodr. = **M. infracta**
*M. asperrima* Kraenzl. = **M. melanoxantha**
*M. aurantiaca* Lindl. = **M. infracta**
*M. aureo-rosea* Weberbauer = **M. bicolor**
*M. auropurpurea* Rchb.f. & Warsz. = **M. bicolor**
**M. bennettii** Luer ..... Plate 7.
**M. bicolor** Poepp. & Endl. ..... Plates 8, 9, 10, 11.
*M. biflora* E. Morren = **M. bicolor**
**M. brachyura** Lehm. & Kraenzl. ..... Plate 12.
**M. brenneri** Luer ..... Plate 13.
**M. bryophila** Luer ..... Plate 14.
**M. buccinator** Rchb.f. ..... Plate 15.
**M. calagrasalis** Luer ..... Plate 16.
*M. candida* Klotzsch & H.Karst. ex Rchb.f. = **M. tovarensis**
**M. cardiantha** Königer ..... Plate 17.
*M. carolloi* Luer & Andreetta = **M. sernae**
**M. carruthersiana** Lehm. & Kraenzl. ..... Plates 18, 19, 20.
*M. cayennensis* Rchb.f. = **M. cuprea**
**M. cinnamomea** Rchb.f. ..... Plate 21.
**M. cocapatae** Luer, Teague & Vásquez ..... Plate 22.
*M. colibri* Burbidge = *M. trochilus*
**M. concinna** Königer ..... Plates 23, 24.
**M. cuprea** Lindl. ..... Plates 25, 26, 27, 28.
*M. cuprea* subsp. *hepatica* (Luer) Luer = **M. cuprea**
**M. deceptrix** Luer & Würstle ..... Plate 29, 30.
**M. descendens** Luer & Andreetta ..... Plate 31.
*M. dispar* Luer = **M. sanctae-fidei**
**M. don-quijote** Luer & Andreetta ..... Plate 32.
**M. dorisiae** Luer ..... Plate 33.
**M. draconis** Luer & Andreetta ..... Plate 34.
**M. dunstervillei** Luer ..... Plate 35.
**M. echo** Luer ..... Plate 36.
**M. empusa** Luer ..... Plate 37.
*M. ephippium* Rchb. f. = *M. trochilus*
*M. ephippium* var. *acrochordonia* (Rchb.f.) Woolw. = *M. trochilus*
**M. excelsior** Luer & Andreetta ..... Plate 38.
*M. forgetiana* Kraenzl. = **M. infracta**
**M. fosterae** Luer ..... Plate 39.

**M. garciae** Luer .....Plate 40.
**M. guerrieroi** Luer & Andreetta.....Plate 41.
**M. guttulata** Rchb.f. .....Plates 42, 43.
*M. guttulata* Rolfe = **M. guttulata** Rchb.f.
**M. helgae** Königer & J.Portilla .....Plate 44.
*M. hepatica* Luer = **M. cuprea**
*M. herzogii* Schltr. = **M. bicolor**
**M. impostor** Luer & Escobar.....Plate 45.
**M. infracta** Lindl. .....Plates 46, 47.
*M. infracta* var. *aristata* (Barb.Rodr.) Cogn. = **M. infracta**
*M. infracta* var. *purpurea* Rchb.f. = **M. infracta**
*M. infracta* subsp. *obscurans* Luer = **M. obscurans**
*M. infracta* subsp. *oscitans* Luer = **M. oscitans**
**M. isos** Luer.....Plates 48, 49.
*M. jimenezii* Königer = **M. empusa**
**M. kuhniorum** Luer.....Plate 50.
*M. lawrencei* Kraenzl. = **M. guttulata**
**M. lenae** Luer & Hirtz.....Plates 51, 52.
**M. lintricula** Königer.....Plates 53, 54.
*M. longicaudata* Lemaire = **M. infracta**
**M. maculata** Klotzsch & H.Karst. .....Plate 55.
*M. maculata* var. *flava* = **M. maculata**
*M. margaretae* Luer = **M. carruthersiana**
**M. martineae** Luer.....Plate 56.
**M. martiniana** Luer.....Plate 57.
**M. mascarata** Luer .....Plate 58.
**M. medusa** Luer & Escobar.....Plate 59.
*M. megaloglossa* Luer & Escobar = **M. vargasii**
**M. melanoxantha** Linden & Rchb.f. .....Plate 60.
**M. mezae** Luer .....Plate 61.
**M. monogona** Königer.....Plate 62.
*M. moyobambae* Königer = **M. weberbaueri**
**M. navicularis** Garay & Dunst. .....Plate 63.
**M. norae** Luer .....Plate 64.
**M. obscurans** Luer.....Plate 65.
**M. odontopetala** Luer.....Plate 66.
**M. omorenoi** Luer & Vásquez .....Plate 67.
**M. oscitans** Luer .....Plate 68.
**M. pastinata** Luer .....Plate 69.
**M. patchicutzae** Luer & Hirtz .....Plate 70.
*M. peruviana* Rolfe = **M. bicolor**
**M. phoenix** Luer .....Plate 71.
**M. pinocchio** Luer & Andreetta.....Plate 72.
**M. portillae** Luer & Andreetta.....Plate 73.
**M. posadae** Luer & Escobar.....Plates 74, 75.
**M. prosartema** Königer.....Plate 76.
*M. rauhii* Sengh. & Braas = **M. mezae**

**M. receptrix** Luer & Vásquez.....Plate 77.
*M. rechingeriana* Kraenzl. = **M. sceptrum**
**M. recurvata** Luer & Dalström .....Plate 78.
**M. revoluta** Königer .....Plate 79.
**M. richardsoniana** Luer.....Plate 80.
*M. richteri* Pabst = **M. vargasii**
**M. sanctae-fidei** Kraenzl. .....Plates 81, 82.
**M. sanguinea** Luer & Andreetta.....Plate 83.
*M. scapha* Braas = **M. navicularis**
**M. sceptrum** Rchb.f. .....Plates 84, 85.
*M. schlimii* var. *sceptrum* (Rchb.f.) Woolw. = **M. sceptrum**
**M. schudelii** Luer.....Plate 86.
**M. scitula** Königer .....Plate 87.
**M. scobina** Luer & Escobar.....Plate 88.
**M. serendipita** Luer & Teague .....Plate 89.
**M. sernae** Luer & Escobar.....Plates 90, 91.
*M. sijmiana* Königer = **M. posadae**
**M. sprucei** Rchb.f. .....Plate 92.
**M. stenorhynchos** Kraenzl. .....Plate 93.
**M. stirpis** Luer .....Plate 94.
*M. subumbellata* Kraenzl. = **M. bicolor**
**M. synthesis** Luer.....Plate 95.
**M. theleüra** Luer.....Plate 96.
*M. torulosa* Königer & J.Portilla = **M. carruthersiana**
**M. tovarensis** Rchb.f. .....Plate 97.
*M. trechsliniana* Königer = **M. bryophila**
*M. tridentata* Lindl. = **M. infracta**
*M. triquetra* Schweidw. = **M. infracta**
**M. trochilus** Linden & André.....Plates 98, 99.
**M. tsubotae** Luer.....Plate 100.
*M. urostachya* Rchb.f. = **M. sceptrum**
**M. vargasii** C.Schweinf. .....Plates 101, 102, 103, 104.
**M. virens** Luer & Andreetta.....Plate 105.
**M. virgo-cuencae** Luer & Andreetta.....Plate 106.
**M. vomeris** Luer .....Plate 107.
**M. weberbaueri** Schltr. .....Plates 108, 109, 110.
**M. whiteana** Luer .....Plate 111.
*M. xanthura* Schltr. = **M. bicolor**
**M. xylina** Rchb.f. .....Plate 112.
**M. zumbae** Luer.....Plate 113.

KEY TO THE SUBSECTIONS AND SPECIES OF SECTION *ALATICAULES*

1 Raceme successively flowered ..... 2
1' Raceme simultaneously flowered ..... 89

*Alaticaules* subsect. *Alaticaules*
(*Sepals tailless*)

2 Lateral sepals acute to obtuse, not contracted into a linear tail ..... 3
2' Lateral sepals contracted into a linear tail ..... 27

3 Lateral sepals broad, connate below the middle ..... *M. virens*
3' Lateral sepals connate to the middle or above into a synsepal ..... 4

4 Synsepal concave, connivent with the tip of the dorsal sepal ..... *M. navicularis*
4' Sepals not as above ..... 5

5 Lateral sepals with the apex contracted into a nipple-like apiculum ..... *M. theleüra*
5' Lateral sepals not with a nipple-like apiculum ..... 6

6 Lateral sepals with the apex acuminate ..... 7
6' Lateral sepals triangular at the apex, not acuminate ..... 18

7 Dorsal sepal antrorse, overlying the synsepal ..... 8
7' Dorsal sepal suberect, erect or recurved ..... 9

8 Peduncle erect ..... *M. portillae*
8' Peduncle ascending or descending ..... *M. lintricula*

9 Peduncle descending ..... *M. descendens*
9' Peduncle suberect to erect ..... 10

10 Sepals white with multiple red dots ..... *M. guttulata*
10' Sepals not white with red dots ..... 11

11 Sepals golden yellow; lip passively motile ..... *M. pinocchio*
11' Sepals not golden yellow ..... 12

12 Synsepal narrowly ovate, acuminate ..... *M. helgae*
12' Synsepal ovate ..... 13

13 Sepals dark red with darker red stripes ..... *M. sanguinea*
13' Dorsal sepal yellowish, synsepal purple ..... 14

14 Lateral sepals with apices diverging ..... 15
14' Lateral sepals with apices approximate ..... 17

15 Sepals 35-45 mm long, synsepal verrucose within ..... *M. kuhniorum*
15' Sepals 15-25 mm long, synsepal not verrucose within ..... 16

16 Lateral sepals with acuminate tips 2-3 mm long ..... *M. weberbaueri*
16' Lateral sepals with acuminate tips, if present, 1 mm long ..... *M. cuprea*

17 Lip more than 10 mm long ..... *M. vargasii*
17' Lip less than 8 mm long ..... *M. zumbae*

18 Dorsal sepal shallowly connate, less than 5 mm ..... 19
18' Dorsal sepal deeply connate, more than half the blade ..... 23

19 Sepaline tube transversely compressed ..... *M. brenneri*
19' Sepaline tube not transversely compressed ..... 20

20 Lip not verrucose ..... *M. revoluta*
20' Lip verrucose ..... 21

21 Dorsal sepal broad, antrorse; lateral sepals with the apices not in apposition ..... *M. draconis*
21' Dorsal sepal narrow, erect; lateral sepals with the apices in apposition ..... 22

22 Pedicels far exceeding the floral bracts; dorsal sepal thick, verrucose ..... *M. scobina*
22' Pedicels barely exceeding the floral bracts; dorsal sepal slender, not verrucose ..... *M. melanoxantha*

23 Lateral sepals with the tips nearly in apposition ..... 24
23' Lateral sepals with the tips not nearly in apposition ..... 25

24 Dorsal sepal with the tail antrorse, broad with revolute sides ..... *M. adrianae*
24' Dorsal sepal with the tail erect, slender ..... *M. aguerrei*

25 Sepals 40-50 mm long, laterals connate 30-35 mm ..... *M. martiniana*
25' Sepals less than 35 mm long, laterals connate less than 20 mm ..... 26

26 Lateral sepals with the apices free ca. 8 mm ..... *M. norae*
26' Lateral sepals with the apices free less than 5 mm ..... *M. cuprea*

(*Sepals with apices very near or contiguous and with tails*)

27 Lateral sepals with the apices very near or contiguous ..... 28
27' Lateral sepals with the apices separated, near or distant ..... 43

28 Sepals deeply connate into a suborbicular tube ..... 29
28' Sepals not deeply connate into a suborbicular tube ..... 30

29 Lateral sepals inflated ..... *M. buccinator*
29' Lateral sepals not inflated ..... *M. echo*

30 Dorsal sepal antrorse or decurved ..... 31
30' Dorsal sepal suberect, erect, or recurved ..... 34

31 Sepals connate into a box-like synsepal ..... 32
31' Sepals expanded beyond the tube ..... 33

32 Synsepal with a prominent, conical mentum ..... *M. whiteana*
32' Synsepal with a shallow mentum ..... *M. guerrieroi*

33 Synsepal concave, recurved, rugose, with recurved tails ..... *M. empusa*
33' Synsepal and tails not as above ..... *M. phoenix*

34 Synsepal with a deeply inflated mentum, rugose within.....*M. trochilus*
34' Synsepal not as above .....35

35 Synsepals densely pubescent within .....36
35' Synsepals not densely pubescent within .....37

36 Synsepals long-pubescent, with the tails approximate.....*M. bennettii*
36' Synsepals short-pubescent, with the tails diverging.....*M. don-quijote*

37 Dorsal sepal decurved beyond the tube with the tail recurving.....
..... *M. virgo-cuencae*
37' Dorsal sepal not decurved beyond the cup or tube, with the tail erect or suberect.
.....38

38 Sepals connate into a tube twice longer than broad.....*M. deceptrix*
38' Sepals connate into a cup about as long as broad.....39

39 Lateral sepals obtusely angled on the medial margin at the base of the tails.....
..... *M. cardiantha*
39' Lateral sepals not angled on the medial margin at the base of the tails.....40

40 Petals with a low, conical process above the base.....*M. schudelii*
40' Petals without a low, conical process above the base.....41

41 Synsepal yellow or green, more or less lightly suffused with purple.....
..... *M. maculata*
41' Synsepal dark purple .....42

42 Lateral sepals connate to the dorsal sepal for about 15 mm.....*M. stirpes*
42' Lateral sepals connate to the dorsal sepal for less than 10 mm.....
..... *M. impostor*

(*Sepals with apices near, not contiguous, acutely angled between*)

43 Lateral sepals with apices near, with the angle between acute.....43
43' Lateral sepals with apices distant, with the angle between obtuse.....58

44 Dorsal sepal with the tail decurved.....45
44' Dorsal sepal antrorse, erect, or recurved .....46

45 Synsepal rugose-verrucose within .....*M. empusa*
45' Synsepal not rugose-verrucose.....*M. dorisiae*

46 Lateral sepals with tails shorter than the blade.....47
46' Lateral sepals with tails longer than the blade.....53

47 Petals with a descending process at the base.....*M. calagrasalis*
47' Petals without a descending process at the base.....48

48 Lip more than 1 cm long .....49
48' Lip less than 1 cm long .....50

49 Flowers yellow, suffused or veined with purple.....*M. vargasii*
49' Flowers dark red, suffused or veined with blackish red.....*M. sanguinea*

50 Synsepal broadly expanded, convex.....*M. virgo-cuencae*
50' Synsepal not broadly expanded and convex.....51

51 Lateral sepals with tails diverging.....*M. amplexa*
51' Lateral sepals with tails parallel or converging.....52

52 Peduncle far exceeding the leaf.....*M. zumbae*
52' Peduncle shorter than the leaf.....*M. anfracta*

53 Sepals deeply connate into a bell-shaped cup.....*M. infracta*
53' Dorsal sepal shallowly connate to the lateral sepals.....54

54 Dorsal sepal connate only at the base.....*M. stenorhynchus*
54' Dorsal sepal connate half or more of its length.....55

55 Lateral sepals with the tails recurved.....*M. omorenoi*
55' Lateral sepals not with recurved tails.....56

56 Dorsal sepal with tail less than 30 mm long, synsepal with tails 10-20 mm long .....*M. bicolor*
56' Dorsal sepal with tail 45-60 mm long.....57

57 Lateral sepals with tails ca. 45 mm long.....*M. xylina*
57' Lateral sepals with tails ca. 20 mm long.....*M. tsubotae*

(*Sepals with apices distant and with tails*)

58 Lateral sepals with tails shorter than, to as long as the blade.....59
58' Lateral sepals with tails more than 2 cm long.....81

59 Sepals whitish with multiple red spots.....*M. guttulata*
59' Sepals not whitish with multiple red spots.....60

60 Sepals with tails 1-2 mm thick.....61
60' Sepals with tails less than 1 mm thick.....65

61 Peduncle longer than the leaves.....*M. patchicutzae*
61' Peduncle shorter than the leaves.....62

62 Sepals with tails subclavate; pedicel with one acute edge.....*M. monogona*
62' Sepals with tails not subclavate.....63

63 Sepals dark purple-brown.....*M. cocapatae*
63' Sepals yellow-green with purple stripes.....64

64 Lip with calli faintly plicate.....*M. garciae*
64' Lip with prominent marginal folds.....*M. martineae*

65 Pedicels 4-5 cm long; sepals rugose-verrucose within.....*M. pastinata*
65' Pedicels less than 2 cm long; sepals not rugose-verrucose.....66

66 Peduncle shorter than, to about as long as the leaf.....67
66' Peduncle distinctly longer than the leaf.....77

67 Peduncle ca. 1.5 cm long.....*M. mascarata*
67' Peduncle more than 2 cm long.....68

68 Peduncle 2-6 cm long ..... 69
68' Peduncle more than 7 cm long ..... 71

69 Lateral sepals connate below the middle ..... *M. sprucei*
69' Lateral sepals connate the length of the synsepal ..... 70

70 Petals with a conical, basal process ..... *M. isos*
70' Petals without a basal process ..... *M. brachyura*

71 Lateral sepals connate to near the middle, with the apices rounded, abruptly contracted into tails ..... *M. fosterae*
71' Lateral sepals connate above the middle ..... 72

72 Synsepal with a deep receptacle-like mentum ..... *M. receptrix*
72' Synsepal without a deep secondary mentum ..... 73

73 Synsepal minutely rugose-verrucose within ..... *M. prosartema*
73' Synsepal not rugose-verrucose ..... 74

74 Synsepal broadly expanded beyond the tube ..... *M. sanctae-fidei*
74' Synsepal expanded from the tube ..... 75

75 Synsepal deep purple-black ..... *M. obscurans*
75' Synsepal greenish ..... 76

76 Synsepal light yellow-green ..... *M. synthesis*
76' Synsepal suffused with light purple ..... *M. sernae*

*(Peduncle longer than the leaf)*

77 Lateral sepals connate more than 6 mm, with tails recurved ..... 78
77' Lateral sepals connate less than 5 mm, with tails not recurved ..... 79

78 Synsepal with a deep, conical mentum ..... *M. serendipita*
78' Synsepal without a deep, secondary mentum ..... *M. recurvata*

79 Lip with a pair of central calli, the apex not sharply acuminate ..... *M. lenae*
79' Lip with a pair of central folds, the apex sharply apiculate ..... 80

80 Lip with central folds wing-like ..... *M. carruthersiana*
80' Lip with obtuse central folds ..... *M. vomeris*

*(Tails of lateral sepals long)*

81 Plant small; peduncle 3-4 cm long ..... *M. richardsoniana*
81' Peduncle more than 10 cm long ..... 82

82 Raceme distantly flowered ..... *M. excelsior*
82' Raceme congested ..... 83

83 Sepals deeply connate into a bell-shaped tube ..... *M. infracta*
83' Synsepal expanded beyond the sepaline tube ..... 84

84 Petals with a protruding callus on either side of the base ..... *M. scitula*
84' Petals without a protruding callus on either side of the base ..... 85

85 Petals with a long, descending tooth at the base.....*M. odontopetala*
85' Petals without a protruding process .....86

86 Synsepal expanded without furrows.....*M. oscitans*
86' Synsepal furrowed.....87

87 Synsepal with markedly revolute sides.....*M. carruthersiana*
87' Synsepal without markedly revolute sides .....88

88 Synsepal connate 19-25 mm .....*M. posadae*
88' Synsepal connate ca. 30 mm .....*M. bryophila*

*Alaticaules* subsect. *Coaetaneae*

89 Sepals with the apices approximate.....90
89' Sepals with the apices not approximate .....91

90 Synsepal deeply concave.....*M. buccinator*
90' Synsepal expanded beyond the sepaline tube.....*M. dunstervillei*

91 Sepals deeply connate into a bell-shaped flower.....*M. infracta*
91' Sepals not deeply connate into a bell-shaped flower.....92

92 Flowers snow white .....*M. tovarensis*
92' Flowers of various colors .....93

93 Dorsal sepal with the tail decurved; lateral sepals deeply rugose.....*M. empusa*
93' Sepals not as above .....94

94 Sepals long-attenuate without demarcation of the tail.....*M. cinnamomea*
94' Sepals long-attenuate, but with demarcation of the tail.....95

95 Lateral sepals free to below the middle with margins recurved.....*M. medusa*
95' Lateral sepals connate to the middle or above.....96

96 Flower yellow-green with short, acuminate tails.....*M. sernae*
96' Dorsal sepal yellow, synsepal purple with narrowly linear tails.....97

97 Lateral sepals with tails much shorter than the blade.....*M. isos*
97' Lateral sepals with tails as long as, or longer than the blade.....98

98 Sepals connate about midway with the apices acute.....99
98' Sepals connate above the middle with the apices obtuse.....100

99 Lateral sepals purple, 8-9 mm wide.....*M. sceptrum*
99' Lateral sepals light green, 5-6 mm wide.....*M. mezae*

100 Raceme distantly flowered .....*M. aenigma*
100' Raceme congested.....101

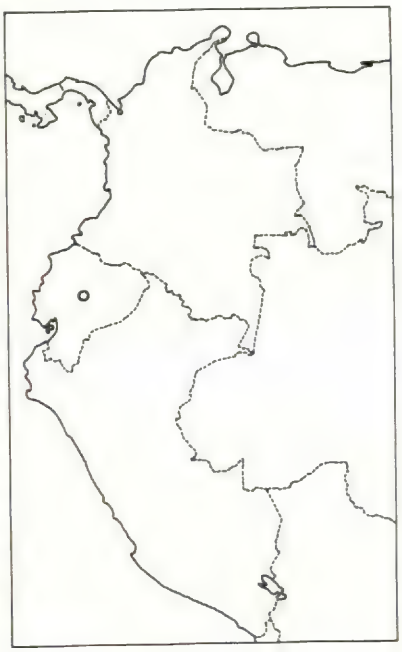
101 Peduncle slender, taller than the leaves; synsepal widely expanded.....
.....*M. concinna*
101' Peduncle stout, usually shorter than the leaves; synsepal not widely expanded...
.....*M. bicolor*

**Masdevallia adrianae** Luer, Monogr. Syst. Bot. 72: 110, 1998.

Ety.: Named in honor of the wife of Antonius (Ton) Sijm of Venhuizen, The Netherlands, who, as well as Patrick Cloes of Hasselt, Belgium, cultivates this species.

**Plant** medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls erect, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-12 cm long including the petiole 2-3 cm long, the blade elliptical, subacute, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a congested raceme of successive flowers borne by a slender, suberect, sharply triquetrous peduncle 15-19 cm long, with a bract near the base, from low on the ramicaul; floral bracts imbricating, ca. 10 mm long; pedicel 12-13 mm long; ovary 5 mm long; **sepals** fleshy, glabrous, yellow-orange, suffused with purple beyond the orifice of the tube, the dorsal sepal elliptical, 18 mm long excluding the tail, 9 mm wide, connate to the lateral sepals for 9 mm to form a cylindrical sepaline tube obtusely gibbous beneath, the apex contracted into a tubular tail with revolute margins, 10 mm long, 3 mm wide not expanded, the lateral sepals connate 19 mm into an elliptical, bifid lamina, 26 mm long including the subacute apices 5 mm long, 15 mm wide; **petals** pale yellow, cartilaginous, oblong, 8 mm long, 3 mm wide, the apex obtuse with an ovoid callus, labellar half with a longitudinal callus that is marginal above the middle, submarginal below the middle; **lip** orange, marked with purple, oblong-subpandurate, 6 mm long, 2 mm wide, with marginal folds above the middle, the epichile apex smooth, convex, the hypochile flat, subcordate at the base, hinged below to a short, incurved extension; **column** semiterete, slender, 6 mm long, the foot 4 mm long.

ECUADOR: Without collection data, obtained from José Portilla, collector, cultivated in Hasselt, Belgium, by *Patrick Cloes 97828* (Holotype: MO), C. Luer illustr. 18795; obtained from same source, cultivated in Venhuizen, The Netherlands, by *Ton Sijm s.n.* (paratype: MO).



This species is similar in habit to the majority of species contained in the subsection. The flowers are produced successively in a congested raceme borne by a slender, triquetroue peduncle that exceeds the leaf in length. The sepals are deeply connate into an orange tube that is obtusely swollen on the bottom side. With recurving margins, the dorsal sepal forms a tube-like tail beyond the sepaline tube. The lateral sepals are suffused with red-purple and are connate to within five millimeters of subacute, tailless apices. The petals are oblong and longer than the lip that is divided above the middle by marginal folds.

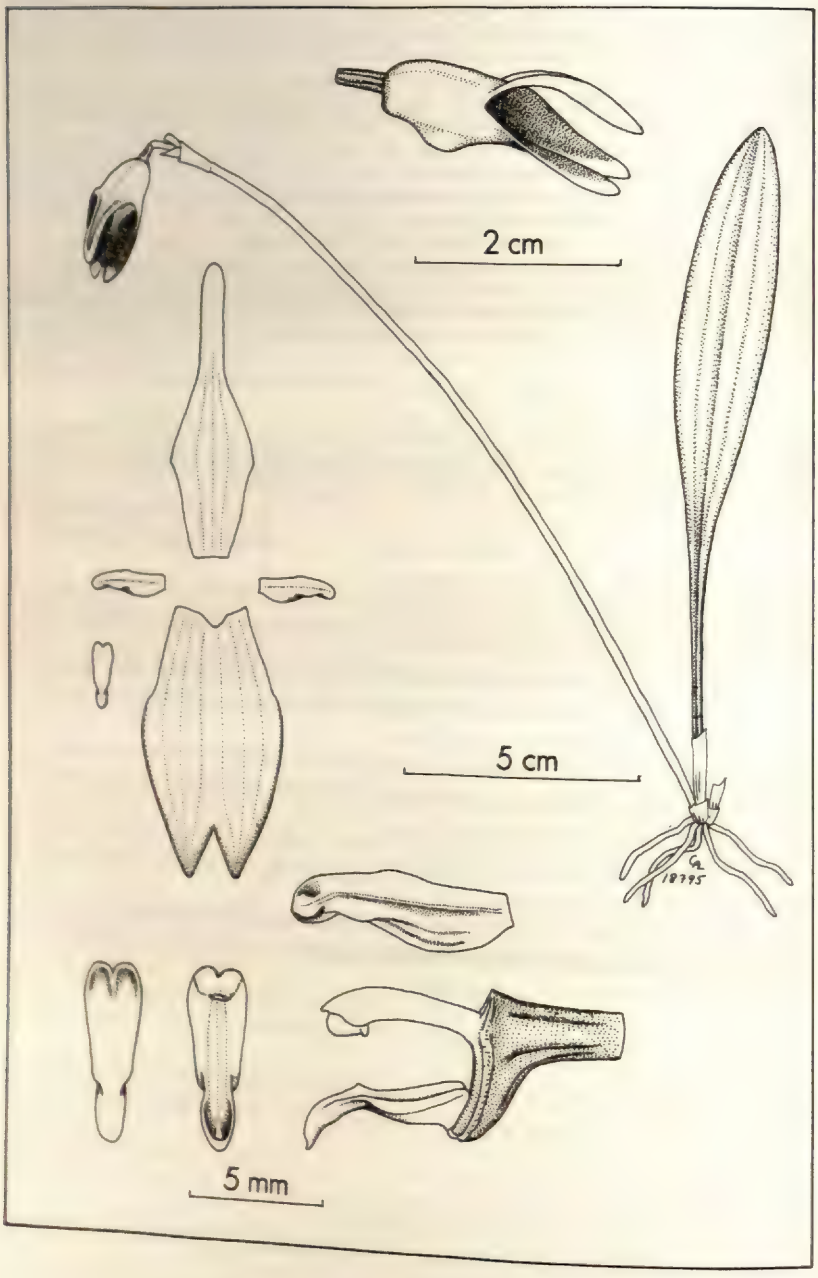


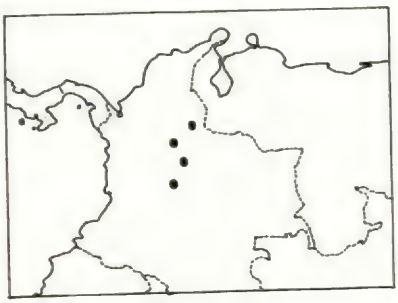

Plate 1. Masdevallia adrianae

**Masdevallia aenigma** Luer & Escobar, Selbyana 7: 69, 1982.

Ety.: From the Latin *aenigma*, "an enigma," in reference to the confusion concerning the identity of this species.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, 2-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 12-18 cm long including the petiole 3-6 cm long, the blade narrowly elliptical, subacute to obtuse, 2-3 cm wide, gradually narrowed below into the petiole. **Inflorescence** a lax, 2- to 4-flowered raceme with 2 flowers usually open simultaneously, the flowers 1.5-3 cm apart, borne by an erect, triquetrous, 8-23 cm long peduncle, with a bract near the base, from low on the ramicaul; floral bracts tubular, 11-17 mm long; pedicels 12-28 mm long; ovary subcostate, 4-8 mm long; **dorsal sepal** yellow, subcarinate, lightly verrucose within, ovate, the blade 8-10 mm long, 5-7 mm wide, connate to the lateral sepals for 4 mm to form a short cup with a purple spot on either side, the free portion triangular with the subacute apex contracted into a more or less suberect, slender, yellow-orange tail, 28-32 mm long; **lateral sepals** purple, whitish toward the base, verrucose within, connate 16-18 mm into an ovate, bifid, bicarinate lamina with a shallow mentum, 20 mm long, 14-18 mm wide, with the margins more or less revolute, the apices obtuse, contracted into slender, yellow tails 19-20 mm long; **petals** white, subsigmoid, 6-6.5 mm long, 2.25 mm wide, with obtuse marginal folds between the middle and upper thirds, the disc shallowly longitudinally sulcate, the apex acute, the base subtruncate, hinged beneath; **column** purple to green marked with purple, semiterete, 6 mm long, the foot stout, 3 mm long with a short, incurved extension.

COLOMBIA: **Boyacá**: epiphytic in wet forest between Arcabuco and Moniquirá, alt. 2500 m, 26 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7571* (Holotype: SEL; Isotype: COL); near Arcabuco, Feb. 1961, *H. Schmidt-Mumm 31* (COL). **Norte de Santander** (old dept. of Ocaña): Pamplona, alt. 5,000 ft., 1846-1852, *L. Schlim 40* (BR, G, K, P, W); same area, *L. Schlim 46* (W); Aspasica, alt. 6,000 ft., *G. Wallis s.n.* (W); Aspasica, *H. Wagener s.n.* (W). **Santander**: west of Velez toward Landazuri, alt. 2500 m, 4 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10152* (MO). **Cundinamarca**: Santandercito, La Rápida, alt. 2450 m, 1971, *P. Ortiz 579* (Herb, P. Ortiz, Bogotá).



This species, apparently endemic in the Eastern Cordillera of Colombia, was first collected in the mid-nineteenth century by Louis Schlim as well as other contemporary collectors. Their collections were usually identified as *M. auropurpurea* or *M. bicolor*. These related species are sympatric in the Eastern Cordillera, but the concept treated as variable *M. bicolor* is widely distributed throughout the Andes. *Masdevallia aenigma* is most similar to *M. excelsior* of southeastern Ecuador.

*Masdevallia aenigma* is distinguished by the lax, two- to four-flowered raceme, usually with two flowers open simultaneously, borne one to three centimeters apart. The peduncles are about as long as the leaves; the sepaline tube is short; the lateral sepals are expanded into a broad, concave synsepal with slender tails about as long as the blade; and the apex of the lip is acute and not verrucose.

Plate 2. Masdevallia aenigma

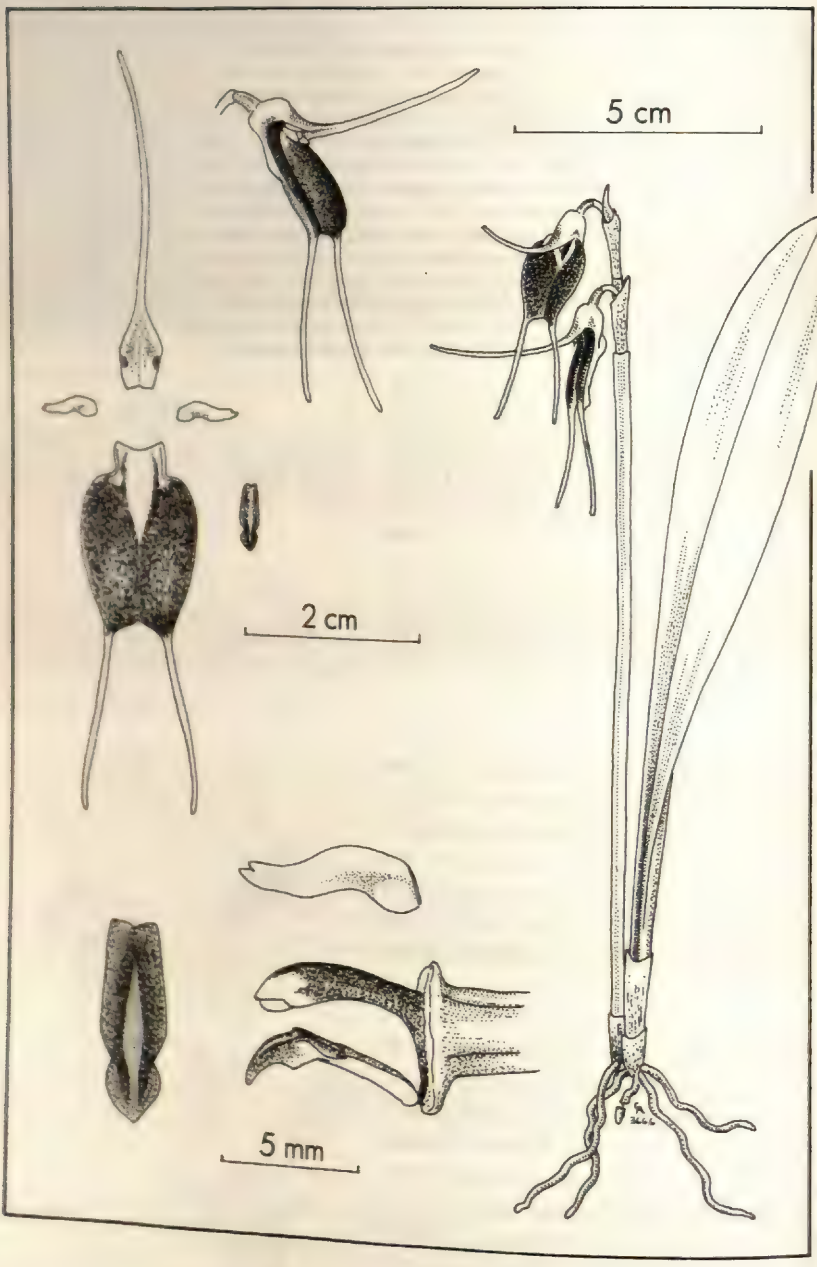


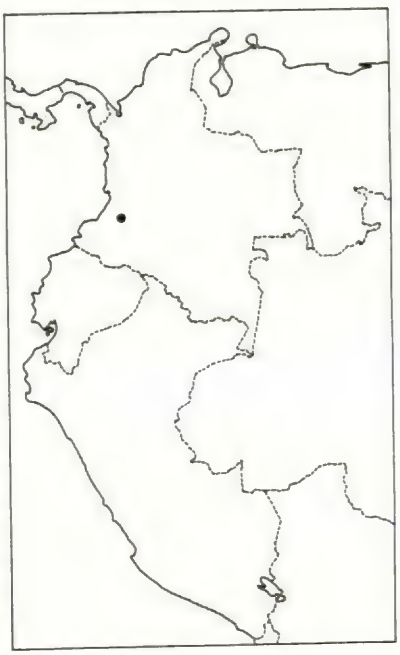

Plate 3. Masdevallia aenigma

**Masdevallia aguirrei** Luer & Escobar, Harvard Papers in Botany 9: 1, 1996.

Ety.: Named in honor of José Luis Aguirre, professional collector, who discovered this species.

**Plant** medium in size, caespitose; roots slender. Ramicauls slender, erect, 2.5-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 11-14 cm long including the 2-3 cm long petiole, the blade narrowly obovate, obtuse, 2-2.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested, few-flowered raceme, peduncle erect, slender, triquetrous, 24-28 cm long, from low on the ramicaul; floral bracts tubular, imbricating, 9-10 mm long; pedicel 15 mm long; ovary green, 4 mm long; **sepals** dark purple, dull orange-brown at the base, glabrous, the dorsal sepal oblong-ovate, the blade 12 mm long, 6 mm wide, connate to the lateral sepals for 8 mm to form a subcylindrical, sepaline tube, the apex acute, contracted into an erect, slender, olive green tail 2 cm long, the lateral sepals connate 14 mm into an ovate, bifid synsepal, 22 mm long, 15 mm wide, shallowly channeled centrally, the apices acute, approximate, not thickened, 4 mm long; **petals** yellow-green with purple dots on the labellar half, 6 mm long, 2 mm wide, with a low carina along labellar half ending in a low, rounded callus above the base, the apex obliquely bilobed; **lip** red-purple, oblong-pandurate with acute, marginal folds above the middle, 6.5 mm long, 2.75 mm wide, the epichile ovate with the apex obtuse, recurved, longitudinally callous, apiculate, the hypochile oblong, shallowly channeled, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 4 mm long, with an incurved extension.

COLOMBIA: **Valle del Cauca**: Bota Caucana, without specific locality, collected by J. Aguirre, cultivated by Francisco Villegas at Orquifollajes near Guarne, Colombia, 9 July 1996, *C. Luer 17988* (Holotype: MO).



*Masdevallia aguirrei* is apparently endemic in southern Colombia where it is known so far only from the original collection. It is allied to *M. cuprea* and relatives, but it is distinguished from all of them by the long, slender peduncle that far exceeds the long leaves. The peduncle bears a congested, successively few-flowered raceme. The flower is relatively small with the deep purple, tailless synsepal expanded beyond the tube. The apices are acute, approximate, not thickened, and free for about four millimeters. The petals are similar to those of the relatives. The lip is also similar, but differs with acute marginal folds between the epichile and the hypochile.

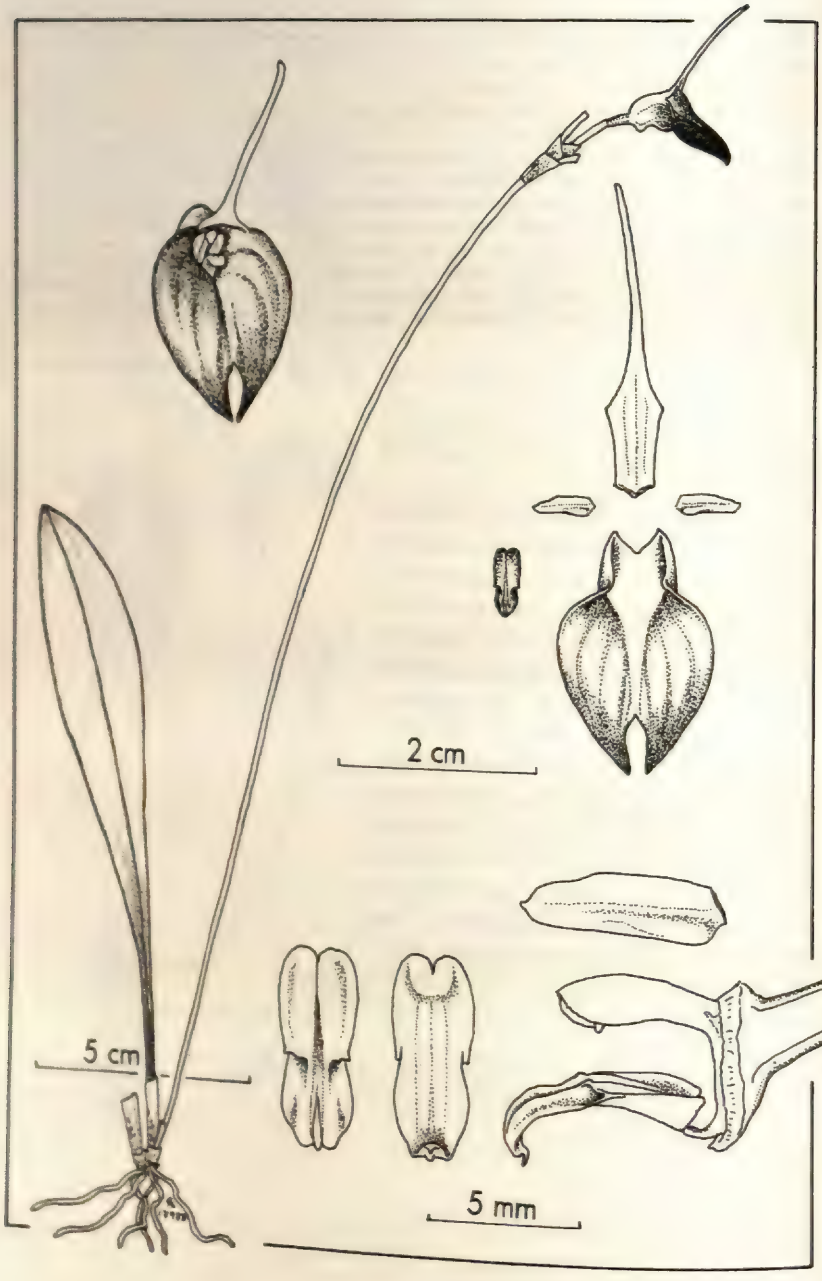


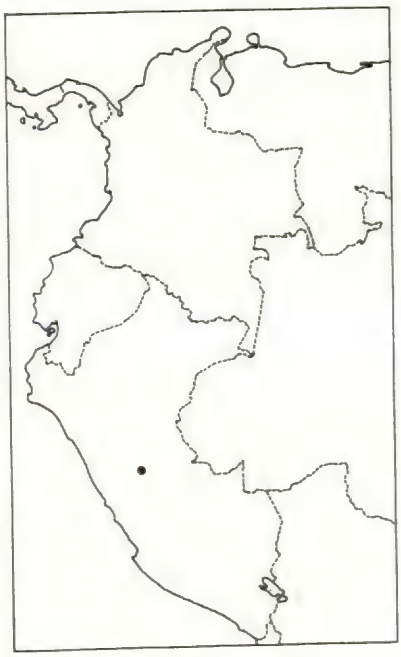

Plate 4. Masdevallia aguirrei

**Masdevallia amplexa** Luer, Monogr. Syst. Bot. 64: 125, 1997.

Ety.: From the Latin *apmlexus*, "clasping," referring to the petals.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 9 cm long including an indistinct petiole ca. 1 cm long, the blade narrowly elliptical-oblong, subacute to obtuse, 1.5 cm wide, narrowly cuneate below into the base. **Inflorescence** a successively flowered, congested raceme, borne by an erect, slender, triquetrous peduncle to 17 cm long, with a bract above the base, from the base of a ramicaul; floral bracts imbricating, 15-17 mm long; pedicel 15 mm long; ovary 6 mm long; **sepals** rigidly fleshy, glabrous, the dorsal sepal yellow, suffused with rose, ovate, 10 mm long, 7 mm wide, 3-veined, connate to the lateral sepals for 5 mm to form a short, sepaline tube, the apex acute, contracted into an erect, slender, orange tail 2.5-3 cm long, the laterals deep red-purple, connate 15 mm into a concave lamina 20 mm long, 20 mm wide expanded, with a small but deep secondary mentum at the base, 6-veined with the veins thickened, the apices obtuse, approximate, contracted into yellow tails 13 mm long; **petals** white with purple dots at the apex, oblong, 5 mm long, 2 mm wide, the apex broad, irregularly truncate with the upper margin thin and embracing the column, the labellar half with longitudinal thickening ending in a rounded callus at the base; **lip** rose, dotted diffusely with purple, oblong-subpandurate, arcuate, 5 mm long, 2 mm wide, thinly winged near the middle, the apex convex, minutely verrucose, with the acute tip decurved, the base descending, truncate, hinged from the end to a short, incurved extension of the column-foot; **column** white, suffused with rose, semiterete, 5 mm long, the foot 4 mm long, spotted, with an incurved extension.

PERU: **Huánuco**: near Tingo Maria, obtained from M. Arias, cultivated by J & L Orchids, 1297-548, *C. Luer 18670* (Holotype: MO).



This uncommon species is apparently endemic in northcentral Peru. The only collection known was imported by J & L Orchids from Manuel Arias. Vegetatively indistinguishable from most other medium-sized species of the section, *M. amplexa* is distinguished by the long peduncle far exceeding the leaves. The flowers are produced successively in a congested raceme. The reddish purple synsepal is proportionately large and concave with thickened veins within and a distinct, secondary mentum. The dorsal sepal is yellow with an erect, slender tail; the tails of the synsepal are short and recurve from approximate apices. Most distinguishing are the petals that clasp the column with dilated upper margins above the middle. The lip differs with the usual marginal folds becoming wing-like extensions of the margin above the middle.

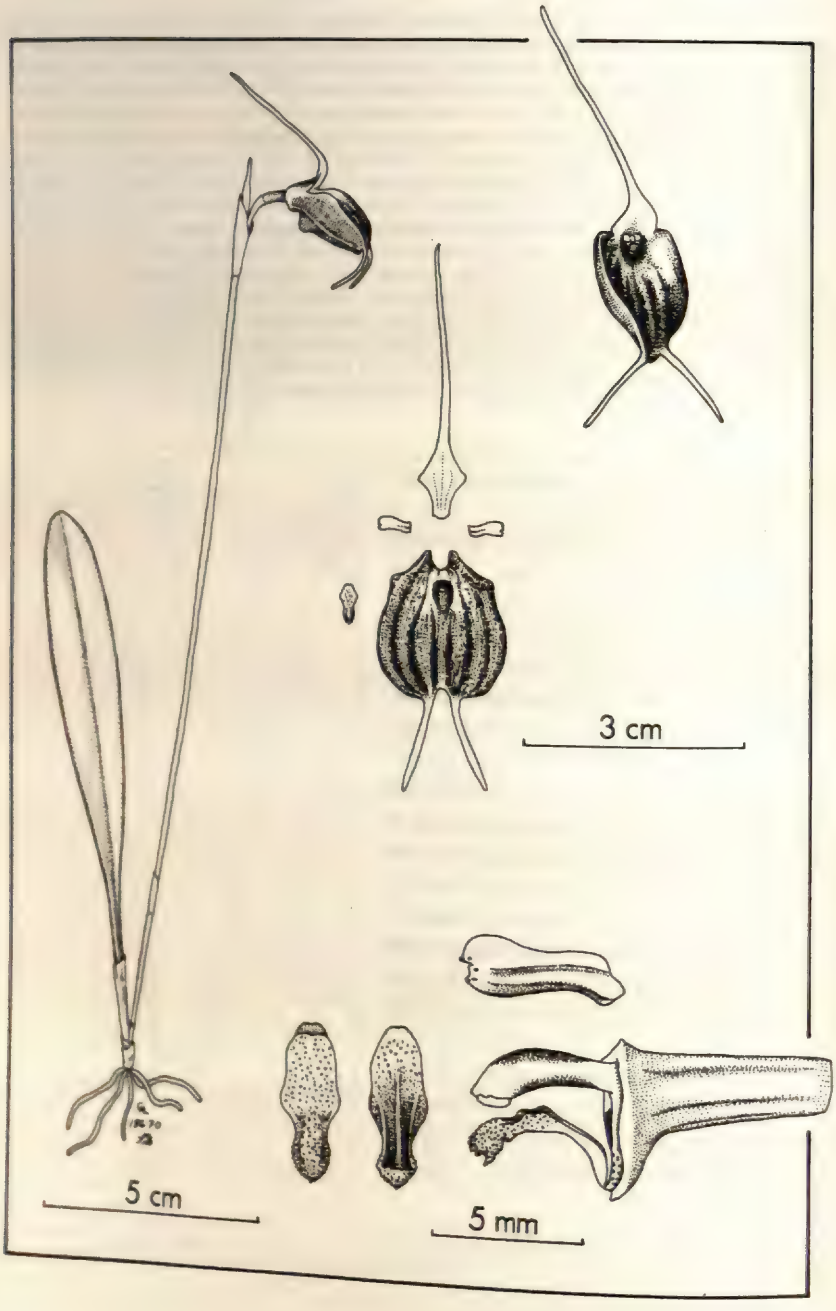


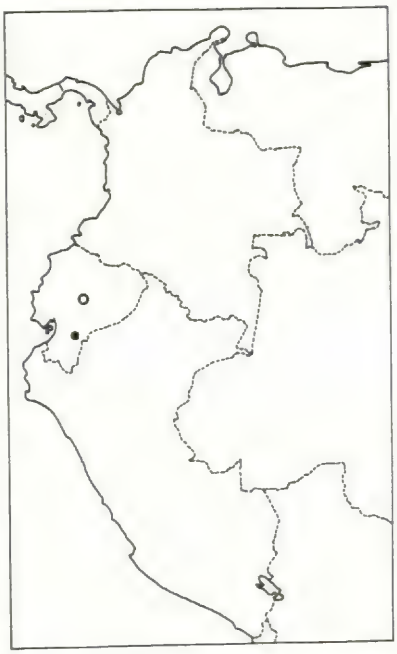

Plate 5. Masdevallia amplexa

**Masdevallia anfracta** Königer, Arcula 4: 96, 1995.

Ety.: From the Latin *anfractus*, "bending, slanting," referring to the distal portion of the synsepal, which is not remarkably different from that of many other species.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-8 cm long including an indistinct petiole ca. 1 cm long, the blade narrowly elliptical-oblong, subacute to acute, 1.2-2 cm wide, narrowly cuneate below into the base. **Inflorescence** a successively flowered, congested raceme, borne by an erect, slender, triquetrous peduncle 6-8 cm long, with a bract at the base, from the base of a ramicaul; floral bracts imbricating, 7-8 mm long; pedicel 12-13 mm long; ovary 6 mm long; **sepals** glabrous, the dorsal sepal yellow-green, oblong, 11 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 9 mm to form a cylindrical, sepaline tube, the apex subacute, contracted into a more or less reflexed, yellow tail 12 mm long, the lateral sepals purple-brown, connate 14 mm into a concave lamina 17 mm long, 10 mm wide expanded, with a shallow mentum, 6-veined, the apices obtuse, nearly approximate, contracted into yellow tails 4-6 mm long; **petals** white, oblong, 6 mm long, 1.5 mm wide, the apex irregularly truncate-dentate, the labellar half with longitudinal thickening ending in a rounded callus at the base; **lip** brown, dotted diffusely with purple, oblong, 5.5 mm long, 1.8 mm wide, with obtuse wing-like folds near the middle, the disc sulcate between folds, the apex convex, verrucose, erose, with the acute tip decurved and apiculate, the base truncate, hinged from the end to the column-foot; **column** white, semiterete, 5 mm long, the foot 2 mm long, with a short extension.

ECUADOR: Without collection data, collected by J. Portilla, flowered in cultivation in Munich, Germany, date unknown, *W. Königer WK-51* (Holotype: M; clonotypes: K, QCA, Herb. H. Königer); cultivated in Venhuizen, The Netherlands, 3 Aug. 1998, *A.P. Sijm 15830* (MO), C. Luer illustr. 18910. *Zamora-Chinchipe*: east of the pass east of Loja, alt. 2200 m, 1994, cultivated in Hasselt, Belgium, 9 Aug. 1999, *P. Cloes s.n.* (MO).



This species is one of those closely related species that had been considered to be a successively single-flowering variation within the *M. bicolor*-complex of usually two, simultaneous flowers. The only significant difference is the pair of shorter, approximate, nearly contiguous, sepaline tails.

*Masdevallia anfracta* is characterized by a peduncle about as long as an elliptical leaf with an obscure petiole. The basic morphology of the successive flower differs very little from that of the *M. bicolor*-complex. The combination of a yellow dorsal sepal and a purplish synsepal is commonly seen in many species. The sepals are connate into a cylindrical tube with the tail of the dorsal sepal more or less recurved. The apices of the synsepal are obtuse, nearly contiguous, and contracted into short tails. The petals and lip do not differ significantly from those of the complex.

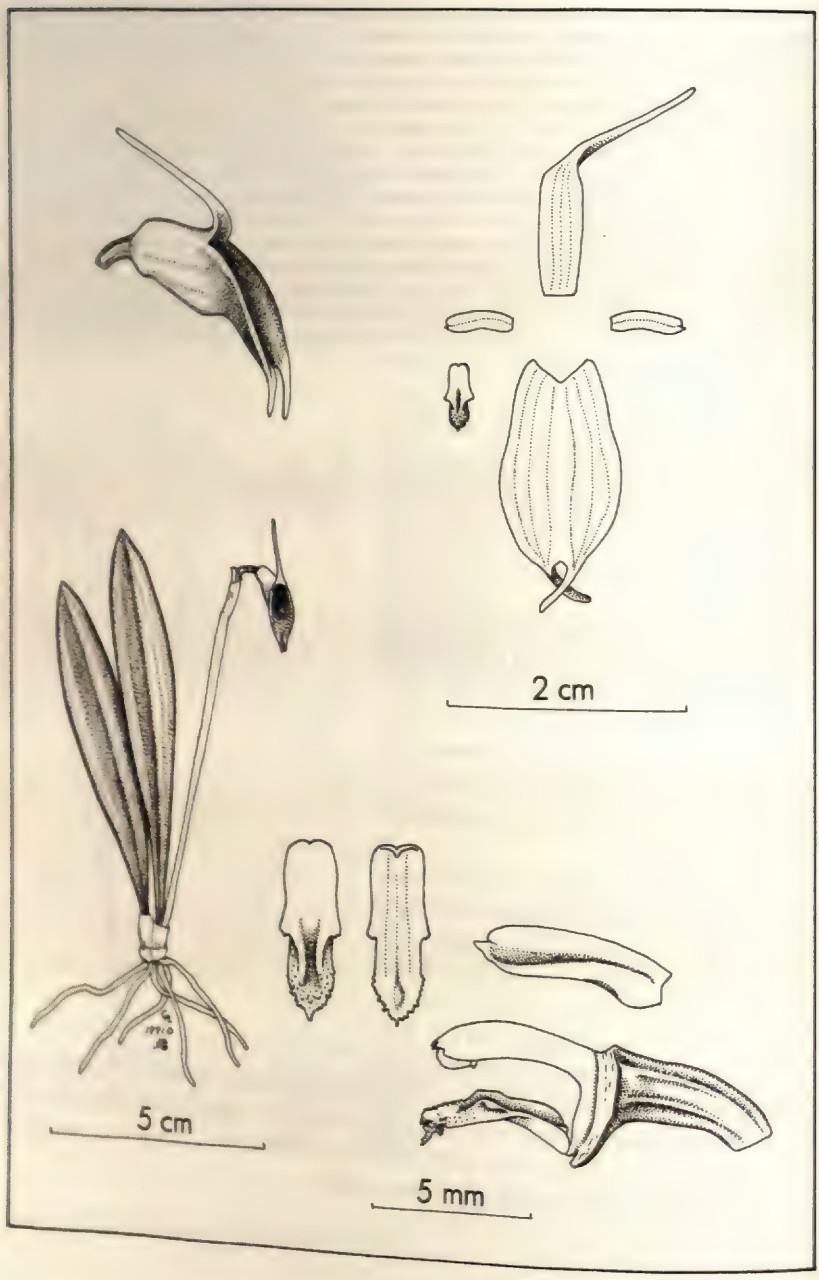


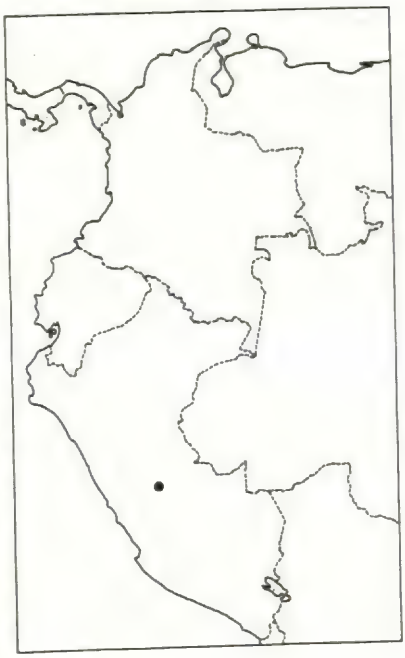

Plate 6. Masdevallia anfracta

**Masdevallia bennettii** Luer, Lindleyana 6: 84, 1991.

Ety.: Named in honor of David Bennett of Lima, Peru, who with his wife Aurora discovered this species.

**Plant** small for the section, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, petiolate, 7-10 cm long including a petiole 3-3.5 cm long, the blade elliptical, subacute to obtuse, 1.5-1.8 cm wide, cuneate below to the petiole. **Inflorescence** a congested, successively flowered raceme, borne by a slender, triquetrous peduncle 7-10 cm long, subtended by a thin bract, from the base of a ramicaul; floral bracts tubular, imbricating, 6 mm long; pedicel 7 mm long; ovary 3 mm long; dorsal sepal golden yellow, ovate, the blade 11-12 mm long, 7 mm wide, connate to the lateral sepals for 6 mm to form a cylindrical tube, the free portion triangular, acute, acuminate into a slender, erect tail 3-4 cm long; lateral sepals rose with dark purple dots, conspicuously villous, connate 18-25 mm into an expanded, ovate lamina 16 mm wide, the apex acute, acuminate into a pair of approximate, slender, yellow tails ca. 2 cm long, the entire length of the lateral sepals 4-5 cm; **petals** creamy white, oblong, 6.5 mm long, 1.75-2.75 mm wide, the apex bidentate, the labellar margin with a longitudinal carina ending in an erect, conical callus above the base, the margin above the base dilated and suberose; **lip** pale rose, oblong, 7-8 mm long, 3-3.5 mm wide, with oblique marginal folds between the middle and outer third, the epichile ovate, obtuse, rugose-verrucose, with erose, revolute margins, the hypochile oblong, the subtruncate base concave, hinged beneath; **column** white, semiterete, 5 mm long, the foot slender with an incurved extension.

PERU: **Pasco**: Oxapamba, along Río Palcazu, alt. 780 m, 20 Aug. 1988, *D. Bennett & A. Bennett 4370* (MO), C. Luer illustr. 14930.



This species was discovered in 1988 by David and Aurora Bennett in low altitude, Amazonian Peru, and to date it has not been found again. It is distinguished by the small habit, thinly coriaceous, petiolate leaves, and a slender, triquetrous peduncle. The strange flower is large for the plant. The dorsal sepal, described as golden yellow, forms a short, sepaline tube with the lateral sepals. Beyond the tube the sepals are connate into a broadly expanded, ovate, purple-dotted synsepal that is covered with long, weak hairs that give the lamina a shaggy appearance unique in the genus. The acuminate apex ends in slender tails held together as one.

The callus of the petals produces an erect, acute process above the margin near the base. The apex of the epichile is obtuse and verrucose.

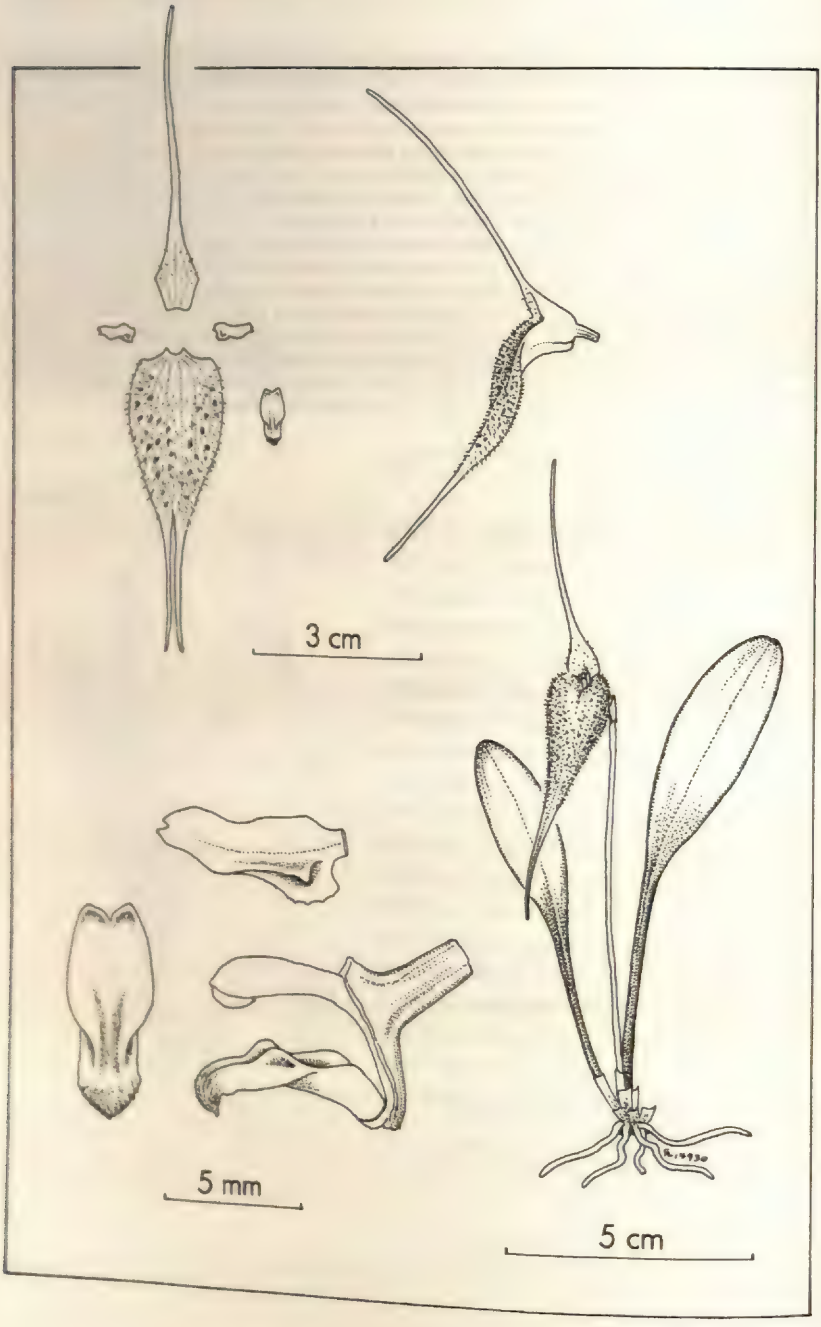



Plate 7. Masdevallia bennettii

**Masdevallia bicolor** Poepp. & Endl., Nov. Gen. et Spec. 2: 6, t. 108, 1838.

Ety.: From the Latin *bicolor*, "of two colors," referring to the yellow dorsal sepal and the purple synsepal.

Syn.: *Masdevallia auropurpurea* Rchb.f. & Warsz., Bonplandia 2: 115, 1854.
Ety.: From the Latin *auropurpureus*, "orange-purple," referring to the orange dorsal sepal and the purple synsepal.

Syn.: *Masdevallia biflora* E. Morren, Belgique Hort. 23: 355, 1873, nomen nudum, non Regel.
Ety.: From the Latin *biflorus*, "two-flowered," referring to the inflorescence.

Syn.: *Masdevallia peruviana* Rolfe, Bull. Misc. Inform. 12, 1906.
Ety.: Named for Peru, the country of origin.

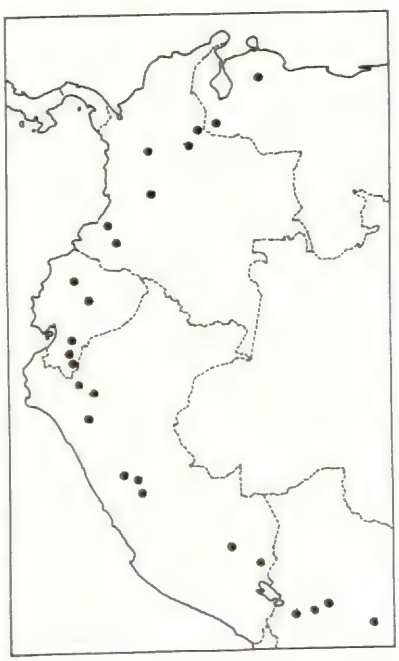
Syn.: *Masdevallia aureo-rosea* Weberbauer, Pflanzenwelt Peruv. And. 288, 584, 1911, nomen.
Ety.: From the Latin *aureo-roseus*, "orange-rose," referring to the colors of the flowers.

Syn.: *Masdevallia herzogii* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 42, 1922.
Ety.: Named in honor of Theodor Herzog who discovered this species.

Syn.: *Masdevallia subumbellata* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 107, 1925.
Ety.: From the Latin *subumbellatus*, "subumbellate," referring to the inflorescence.

Syn.: *Masdevallia xanthura* Schltr., Repert. Spec. Nov. Regni Veg. 27: 39, 1929.
Ety.: From the Greek *xanthura*, "yellow tail," referring to the sepaline tails.

**Plant** medium in size, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 1-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 6-13 cm long including an indistinct petiole 1-2.5 cm long, the blade elliptical to obovate, the apex subacute to obtuse, 1.3-2.8 cm wide, gradually narrowed below to the channeled base. **Inflorescence** a congested raceme of 2, or occasionally 3, simultaneous, or nearly simultaneous flowers, uncommonly successively flowered, borne by a stout, triquetrous peduncle 6-13 cm long, subtended by a bract, from the base of a ramicaul; floral bracts tubular, imbricating, 9-18 mm long; pedicel 5-15 mm long; ovary 3-6 mm long, with prominent ribs; **dorsal sepal** green, yellow, or orange, obovate, 8-13 mm long, 4-6 mm wide, connate to the lateral sepals for 6-10 mm to form a cylindrical tube, the free portion triangular, acute, acuminate into a slender, forward tail 8-37 mm long, the **lateral sepals** dark purple, with the midvein prominent externally, smooth or microscopically verrucose within, obovate, oblique, connate 9-15 mm, 11-20 mm long, 12-16 mm wide together forming a shallow, secondary mentum, the free portions obtuse, contracted into slender green or yellow tails 7-30 mm long; **petals** white to light yellow, oblong, 5-6 mm long, 1.25-2 mm wide, the apex rounded or obtuse, obscurely bi- or trilobed, the labellar margin with a low, longitudinal carina ending in a low, rounded callus at the base; **lip** white to cream, diffusely dotted, spotted, or suffused with red-purple or red-brown, oblong, 5-7 mm long, 2-2.5 mm wide, with oblique marginal folds near the middle, the epichile ovate, obtuse, verrucose, with undulate, erose, revolute margins, the hypochile oblong, the truncate base hinged on the end; **column** green to yellow, suffused with purple, semiterete, 5-6 mm long, the stout foot with a short, incurved extension.



PERU: **Huánuco**: near Cuchero, on old trees in mountain woods, *Poeppig 1662* (Holotype: W); without collection data, cultivated at Glasnevin, July 1898, June 1901, *Rolfe s.n.* (holotype of *M. peruviana*: K); between Tingo Maria and Pucallpa, alt. 1700 m, cultivated in Munich, Germany, 8 Sept. 1981, *W. Königer 31* (SEL), C. Luer illustr. 6473; Divisoria, cultivated in Munich, Germany, 9 Sept. 1981, *W. Königer s.n.* (SEL), C. Luer illustr. 6479. **Amazonas**: Serrania de Bagua, alt. 1800-1950 m, 14 June 1978, *A. Gentry et al. 22925* (MO). **Cajamarca**: Cerro Campana near San Ignacio, alt. 1450 m, 23 Aug. 1980, *C. Luer, J. Luer, W. Königer & H. Königer 5406* (SEL). **Pasco**: below Paucartambo, alt. 2400 m, 18 Dec. 1987, *D. Bennett & A. Bennett 3830* (MO). **Junín**: between Tarma and San Ramón, alt. 2200 m, 29 Jan. 1979, *C. Luer & J. Luer 3792* (SEL, MO). **Puno**: Carabaya, Valle de San Gabón, alt. 1100 m, 7 Feb. 1967, *C. Vargas 18867* (AMES); Pampayacu, 31 Jan. 1927, *R. Kanehira 306* (AMES). ECUADOR: **Loja**: "Loja," *G. Hübsch s.n.* (W). **Napo**: epiphytic in forest north of Baeza, alt. 1500 m,

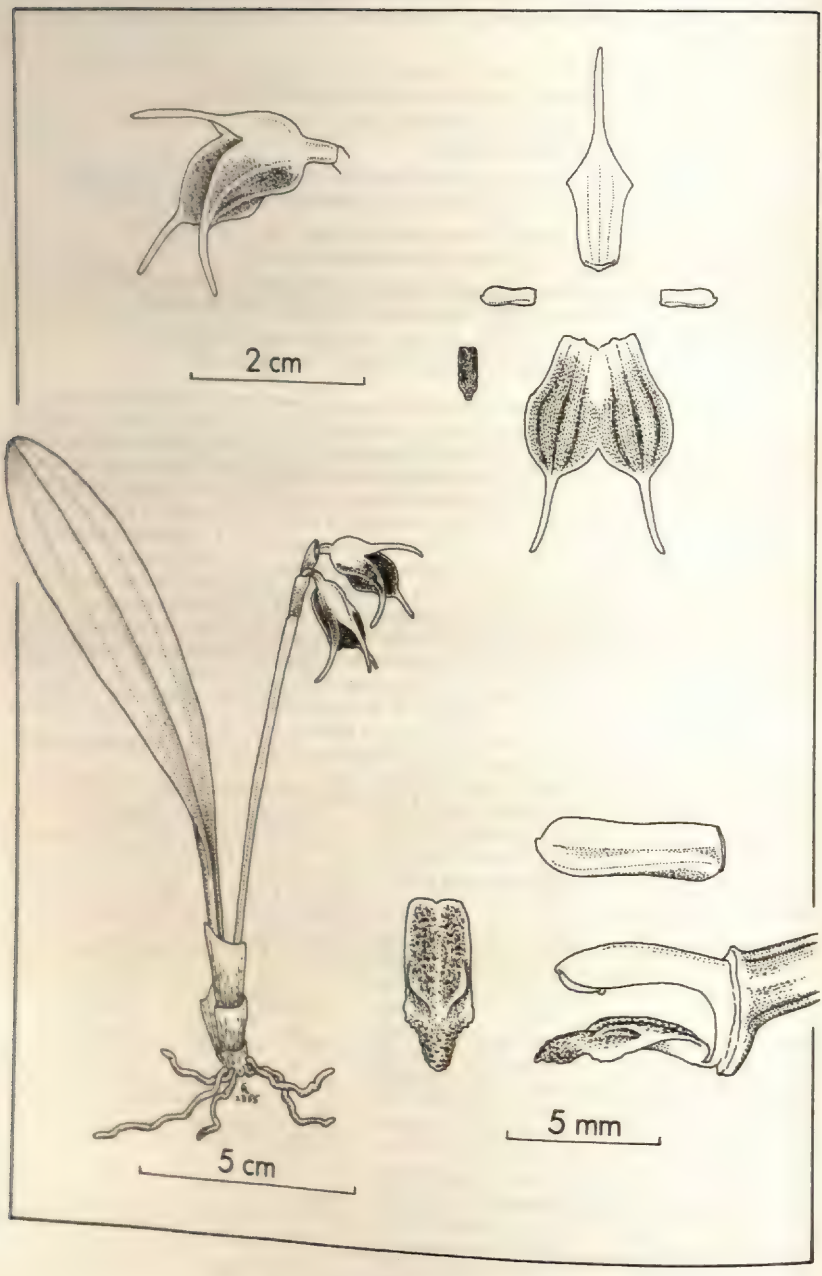



Plate 8. Masdevallia bicolor

10 May 1978, *C. Luer, J. Luer, A. Andreetta & A. Hirtz 3213* (SEL), cultivated at Paute, 16 May 1988, *C. Luer 13390* (MO). **Morona-Santiago**: Río Calagrás, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 16 May 1988, *C. Luer 13391* (MO). **Pastaza**: Río Pastaza, alt. 6,000 ft., 1877, *F.C. Lehmann 74* (W); near Veracruz, 24 June 1968, *H. Lugo S. 9a* (S); Tumbes, alt. 1800-1900 m, Mar. 1992, *S. Dalström 1943* (MO). **Pichincha**: above Chiriboga, collected by D. D'Alessandro, cultivated at the Predesur Orquideario at Vilcabamba, 12 May 1981, *C. Luer 6217* (SEL). **Zamora-Chinchipe**: Cordillera del Condor, Feb. 1995, *A. Hirtz 6201* (MO); Quebrada Honda north of Valladolid, alt. 1800 m, collected by D. D'Alessandro, cultivated at Predesur at Vilcabamba, 2 Nov. 1982, *C. Luer 8265* (SEL); south of the pass south of Yangana, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, D. D'Alessandro & J. Kuijt 9615* (MO); Río Zamora, alt. ca. 1000 m, collected by D. D'Alessandro, cultivated at Predesur, at Vilcabamba, 4 May 1981, *C. Luer 6090* (SEL); "Loja:" without locality, *G. Hübsch s.n.* (W).

COLOMBIA: Without locality, *J. von Warszewicz s.n.* (Lectotype of *M. auropurpurea*: W). **Santander**: Aspasica, *H. Wagener s.n.* (W). **Antioquia**: Antioquia, *Patin s.n.* (W). **Norte de Santander**: between Chinacota and Toledo, Páramo de Mefue, alt. 2500 m, 12 May 1982, *C. Luer & R. Escobar 7802* (MO, SEL). **Caldas**: Anserma Vieja, alt. 1800 m, 27 Oct. 1883, *F.C. Lehmann 3280* (G); same area, alt. 1600-2000 m, 29 Aug. 1884, *F.C. Lehmann 4303* (G). **Valle del Cauca**: Río Buga, alt. 1500 m, 28 Dec. 1881, *F.C. Lehmann 814* (G); Buga, road to Buenaventura, alt. 1400 m, 25 July 1967, *H. Garcia-Barriga 18821* (AMES, COL). **Cauca**: El Almorzadero, 14 Apr. 1876, *E. André 2712, 2713* (K); highlands of Popayán, alt. 1400-1800 m, 22 Jan. 1884, *F.C. Lehmann 4129* (holotype of *M. subumbellata:* AMES; isotypes: G, W); same locality and date, *F.C. Lehmann 6742* (AMES, G, K, LE, W); without locality, cultivated by Amalia Lehmann de Sarria, cultivated 30 Jan. 1978, *C. Luer 2355* (SEL).

VENEZUELA: **Lara**: Jiménez, between Sanare and El Volcán, alt. 1700 m, 13 June 1959, *J. Renz 9513* (BAS); Jiménez, Parqué Nacional Yacambú, alt. 1450 m, 6 Aug. 1970, *J.A. Steyermark et al. 103506* (AMES, VEN). **Táchira**: between Providencia and La Revancha, alt. 1600 m, 11 May 1951, *J. Renz 6927* (BAS); San José de Bolívar, G.C.K. Dunsterville 1144, cultivated at El Hatillo, 24 July 1982, *C. Luer 8086* (SEL).

BOLIVIA: **La Paz**: Larecaja, Hacienda Simaco, above Tipuani, alt. 1400 m, Mar. 1920, *O. Buchtien 5022* (holotype of *M. xanthura* destroyed at B; lectotype here designated: AMES; isolectotype: HBG); Nor Yungas, west of Coroico, alt. 1820 m, 27 Jan. 1983, *C. Luer, J. Luer & R. Vásquez 8581* (SEL); northeast of Chuspipata, above Yolosa, alt. 2100 m, 3 Apr. 1984, *J.C. Solomon & M. Uehling 12173, 12174* (MO); same area, alt. 1850 m, 21 Jan. 1988, *C. Luer, J. Luer, R. Vásquez & J. Solomon 12915* (neotype for *M. herzogii* here designated: MO); north of Caranavi toward Alto Beni, alt. 1550 m, 26 Jan. 1988, *C. Luer, J. Luer, R. Vásquez & J. Solomon 12953* (MO). **Santa Cruz**: mountain forest near Tres Cruces, alt. 1500 m, Feb. 1911, *T. Herzog 1642* (holotype of *M. herzogii* destroyed at B; neotype: MO, *C. Luer et al. 12915*: MO).

The numerous populations grouped together into this large "species-complex" known as *M. bicolor*, are variable in size vegetatively and florally. They are widely distributed and relatively frequent in the Andes from Venezuela to central Bolivia. The lengths of the tails and details of the lips vary so much that it may be argued that this species is actually composed of numerous closely allied, "look-alike" species too similar to each other and with too many intermediates to make taxonomic distinction feasible. Several closely allied species are sufficiently distinct to be recognized, *e.g.*, the Ecuadorian *M. brachyura* and the Bolivian *M. isos*.

Usually two flowers are produced simultaneously, or nearly simultaneously, in a congested raceme, but three simultaneous flowers are not uncommon (*M. subumbellata*). A yellow-orange dorsal sepal and a dark red-purple synsepal forming a cylindrical tube seem rather constant features. The dorsal sepal is relatively deeply connate to the synsepal, about half the length of the synsepal. The sepaline tails are usually about the same length as the blades, but tails longer or shorter occur. A variation with exceptionally long tails was described as *M. xanthura*. The apices of the petals are variable as they are in many species. The callus along the labellar margin terminates in a rounded swelling at the base, not forming a descending process. The lips vary slightly in size, but the marginal folds that divide the lip into an epichile and a hypochile vary in position and thickness. The epichiles vary from lightly to coarsely verrucose with entire to coarsely erose margins.

On the type-sheet of *M. bicolor* at W, the envelope that housed a flower of the type is empty. An adjacent envelope with a single flower is designated the lectotype. A single leaf and peduncle are present on the sheet.

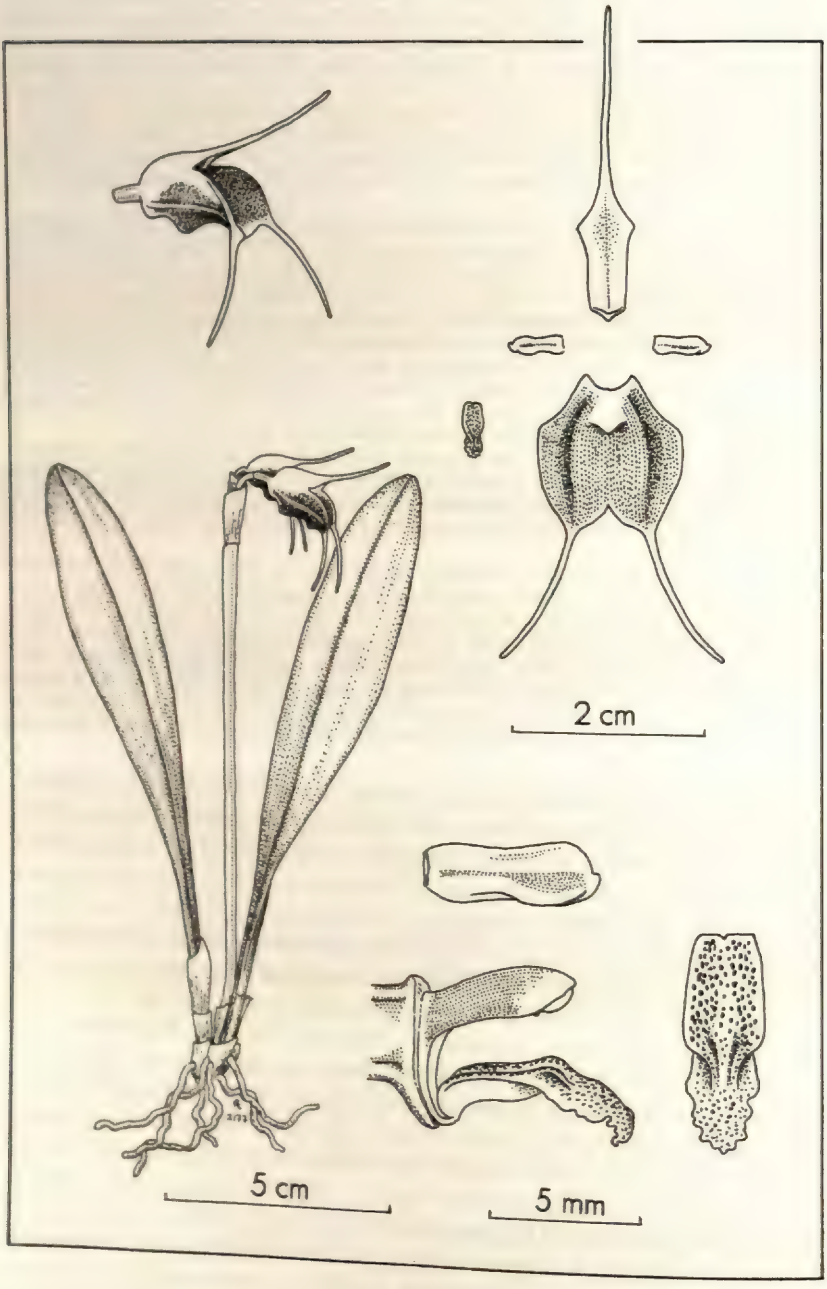



Plate 9. Masdevallia bicolor

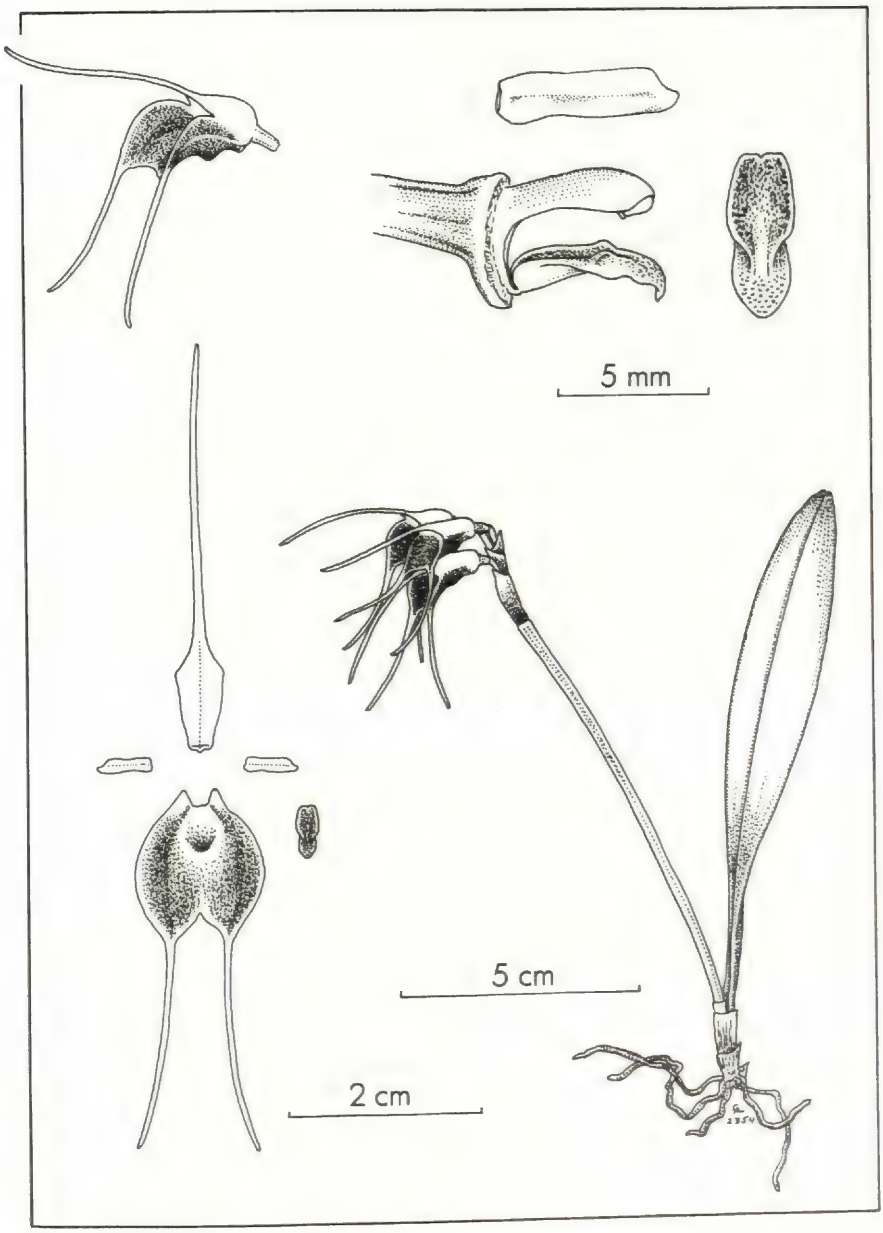



Plate 10. Masdevallia bicolor
(M. subumbellata)

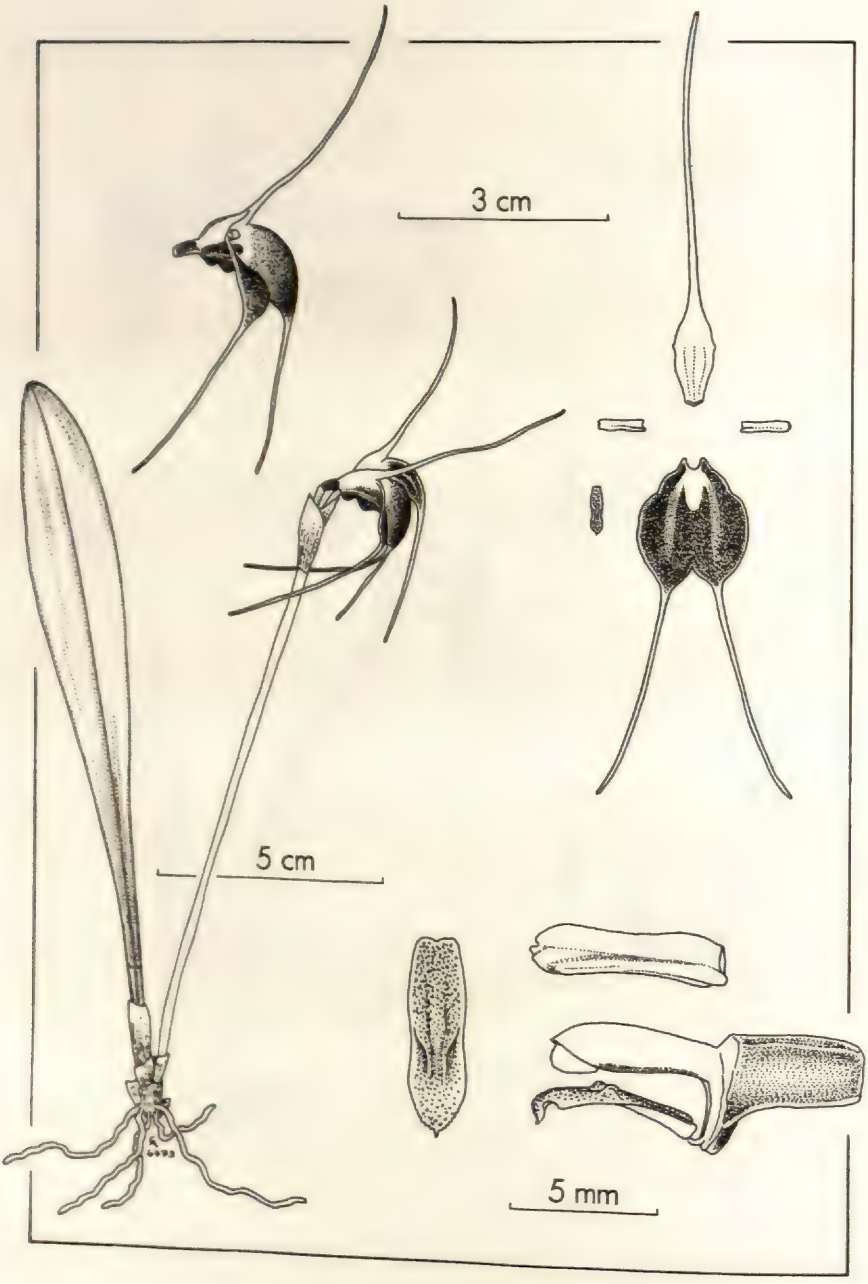


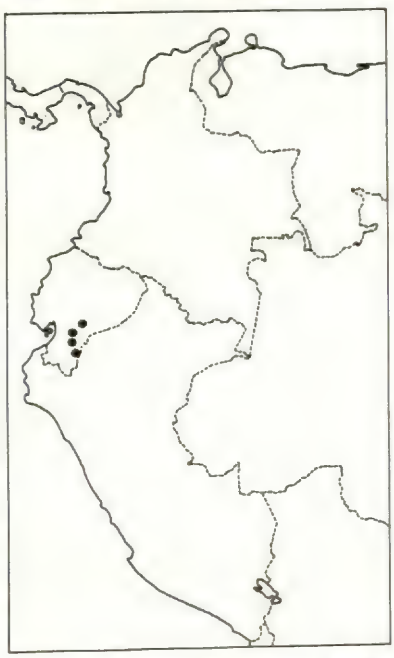

Plate 11. Masdevallia bicolor
(M. xanthura)

**Masdevallia brachyura** Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 453, 1899.

Ety.: From the Greek *brachys*, "short," and *ura*, "tail," in reference to the sepaline tails.

**Plant** small, epiphytic, densely caespitose; roots slender. Ramicauls 0.8-1 cm long, enclosed by 2 loose, imbricating, more or less conduplicate sheaths. **Leaf** erect, coriaceous, 3-7 cm long including the 1-2.5 cm long petiole, the blade elliptical-obovate, obtuse, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a successively few-flowered, congested raceme, occasionally bearing 2 flowers simultaneously, borne by a slender, triquetrous peduncle 3-4.5 cm long, with a bract at the base, from low on the ramicaul; floral bracts imbricating, ca. 1 cm long; pedicel ca. 1 cm long; ovary 2 mm long; **dorsal sepal** yellow, sometimes suffused or minutely dotted with red externally, obovate, 18 mm long, 6 mm wide, connate to the lateral sepals for 7-8 mm to form a broad sepaline tube, the free part broadly triangular, the acute apex contracted into a forwardly directed yellow tail 6-8 mm long; **lateral sepals** dark purple-brown, obovate, oblique, connate 10 mm to form a broad lamina 10-11 mm long, 10-12 mm wide expanded, the rounded apices abruptly contracted into slender green tails 3-5 mm long; **petals** white, oblong, the apex acute or obtuse and apiculate, 6 mm long, 2 mm wide, the labellar half longitudinally thickened; **lip** heavily spotted with red-purple on white, oblong, 6 mm long, 2.5 mm wide, with a pair of irregular, marginal folds near the middle, the verrucose epichile more or less narrowly truncate with a marginal callus, the hypochile oblong with the truncate base hinged below; **column** greenish white, semiterete, 5 mm long, the foot spotted with purple, 2 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: wet forest near Chiguinda, east of Sigsig, alt. 1600-1800 m, April and May 1887, *F.C. Lehmann 6522* (Holotype: K; Isotypes: AMES, NY, US); Cordillera Oriental, without specific locality, alt. 1700 m, April 1975, collected by B. Malo, cultivated in Tarqui 14 July 1977, *C Luer 1697* (SEL); cloud forest east of Paute, alt. 1800 m, 10 July 1977, *C. Luer, J. Luer, G. Luer & A. Andreetta 2567* (SEL); north of Gualaquiza near Río Calagrás, alt. 1650 m, 4 Nov. 1982, *C. Luer, R. Escobar & D. D'Alessandro 8287* (SEL); west of Gualaquiza, alt. 1600 m, 2 Feb. 1989, *S. Dalström & T. Höijer 1226* (MO); near Campamento Guarumales, alt. 1650 m, 24 Mar 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15245* (MO). **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1450 m, 18 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13432* (MO).



A watercolor painting of this species by F.C. Lehmann, *124*, labeled *M. chrysonota*, but without a herbarium specimen, is deposited at Kew. The species is apparently endemic in the humid forests of the eastern slopes of the Andes of southern Ecuador, an extremely orchid-rich region.

*Masdevallia brachyura* is related to the widely distributed *M. bicolor*, but the former is distinguished by the smaller habit; the shorter, slender peduncle; smaller flowers with short sepaline tails; and petals without a round callus at the base. It is listed as a synonym of *M. bicolor* in *Venezuelan Orchids, Illustrated*.

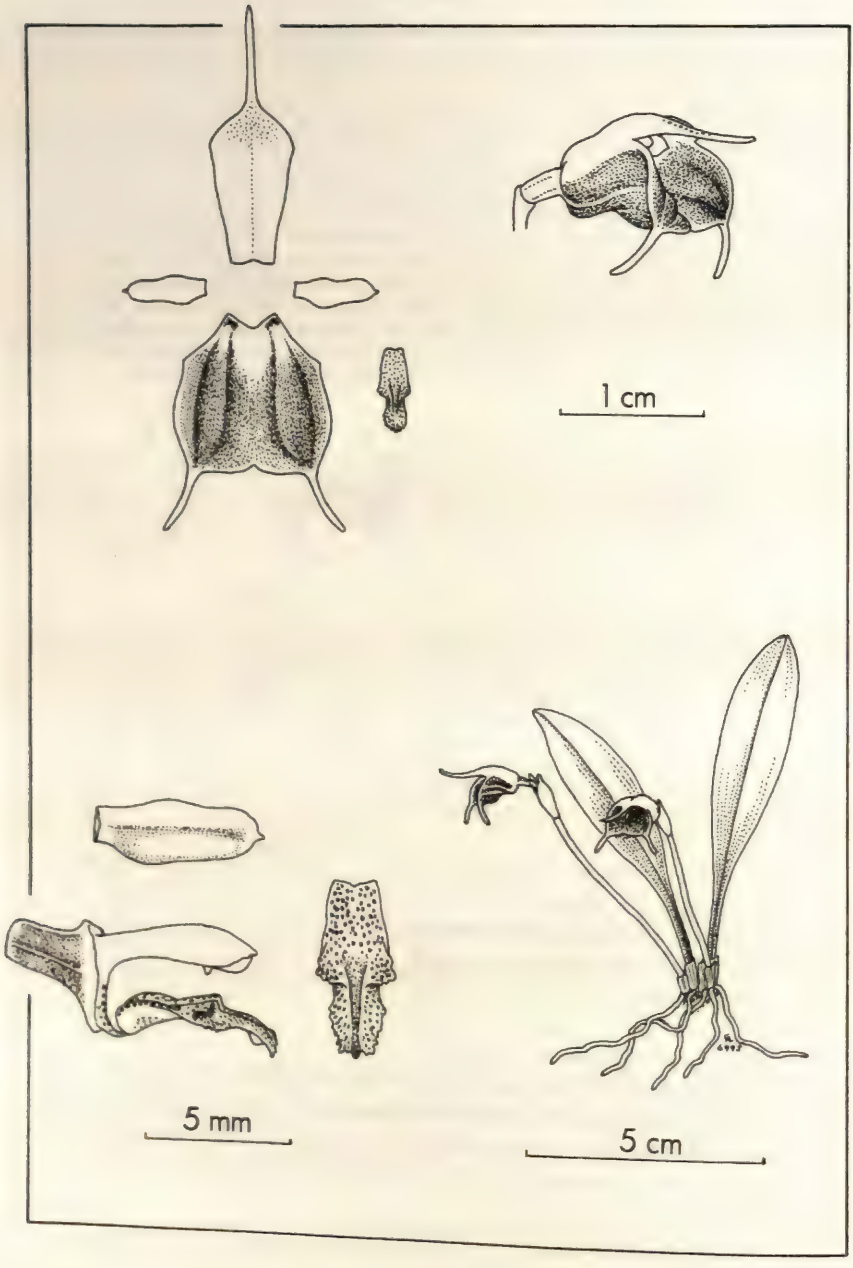


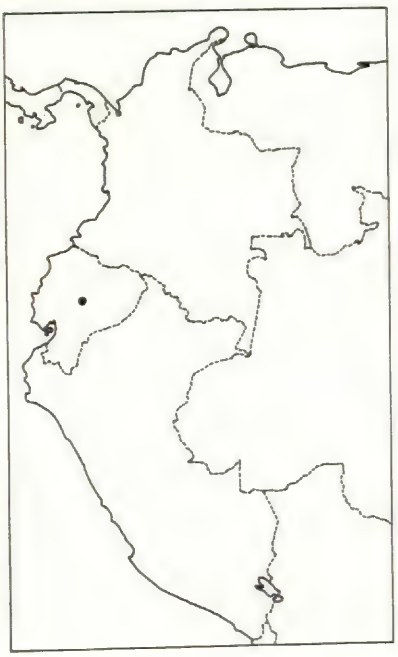

Plate 12. Masdevallia brachyura

**Masdevallia brenneri** Luer, Phytologia 39: 190, 1978.

Ety.: Named in honor of Joe Brenner, at that time of Puyo, Ecuador, who discovered this species.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute, 7-11 cm long, 1-1.3 cm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a congested, successively several-flowered raceme to 1.5 cm long, borne by an erect, stout, triquetrous peduncle 6-13 cm long, with a bract at the base, from the base of a ramicaul; floral bracts thin, oblique, imbricating, 8-10 mm long; pedicel 10-12 mm long; ovary 3 mm long; **sepals** glabrous, light green, the dorsal sepal horizontal, ovate, 16 mm long including the broad tail-like apex, 5 mm wide, connate to the lateral sepals for 3 mm to form a short, transversely compressed, sepaline cup, the broad apex produced into a broad "tail" 9 mm long, 2 mm broad and thick, the lateral sepals suffused and speckled with rose centrally, ovate, oblique, 14.5 mm long, connate 9 mm into a subquadrate, flattened, shallowly gibbous, bifid lamina 11 mm wide, the free portions triangular, subacute, thickened; **petals** greenish white, dotted and suffused with rose, oblong, 5 mm long, 1.5 mm wide, obscurely bidentate at the truncate apex, the labellar margin with a longitudinal callus ending in a rounded callus above the base; **lip** white with purple dots, oblong, 4 mm long, 1.75 mm wide, with low, marginal folds near the middle, the apex rounded, the base subcordate, hinged beneath; **column** green, suffused with purple, semiterete, 4 mm long, the stout foot spotted with purple, 1.5 mm long, with a short, incurved extension.

ECUADOR: **Pastaza**: epiphytic in cloud forest near Mera, alt. 1000 m, obtained by J & L Orchids from J. Brenner, purchased by T. Vigliotti of Miami, FL, cultivated 18 May 1977, *C. Luer 1640* (SEL).



Although Joe Brenner had reported that this species was not rare near his home in Puyo, Pastaza, in eastern Ecuador, it has not been collected again to my knowledge. At the present time it is not in cultivation.

*Masdevallia brenneri* is identified by the greenish, dorsally compressed flowers borne singly in a congested raceme atop a triquetrous peduncle. The dorsal sepal is antrorse with a tail two millimeters thick. The lateral sepals are deeply connate into a "tailless" synsepal that ends in broad, triangular apices. It is related to the common and sympatric *M. guttulata*, but more closely related and to the infrequent *M. virens*. The latter is distinguished by a non-compressed flower with longer, narrowly triangular free portions.

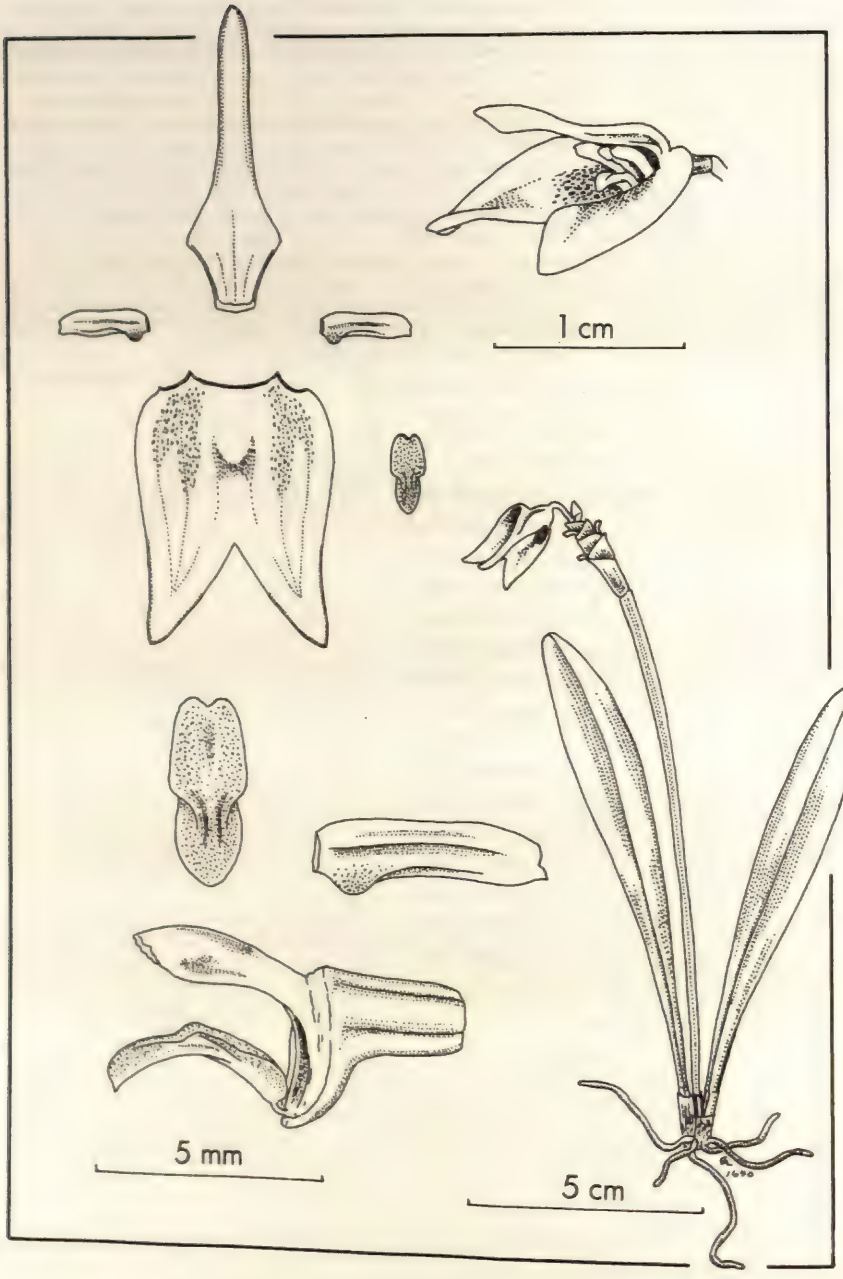



Plate 13. Masdevallia brenneri

**Masdevallia bryophila** Luer, Harvard Papers in Botany 9: 1, 1996.

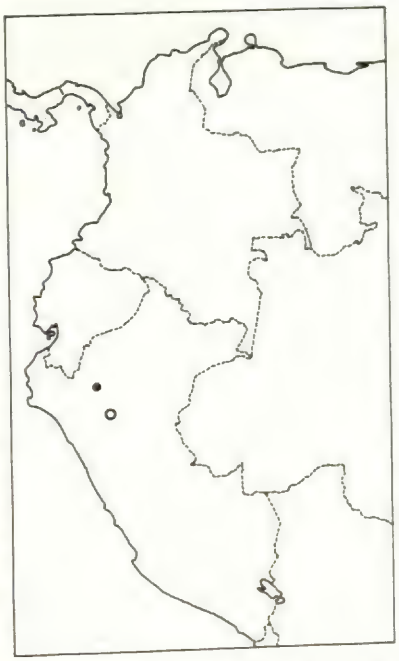
Ety.: From the Greek *bryophilus*, "moss-loving," indicating a habitat.

Syn.: *Masdevallia trechsliniana* Königer, Arcula 7: 202, 1997.

Ety.: Named in honor of Frl. Anne Marie Trechslin of Bern, Switzerland, renowned botanical illustrator.

**Plant** medium to large in size, caespitose; roots slender. Ramicauls stout, erect, 2.5-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 9-17 cm long including the 2-3 cm long petiole, the blade elliptical, obtuse, 1.5-2.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne successively in a loose, few-flowered raceme; peduncle erect, sharply triquetrous, spotted with purple, 15-25 cm long, from low on the ramicaul; floral bract tubular, 13-16 mm long; pedicel 20 mm long, spotted with purple; ovary green, 5 mm long; **sepals** dark purple, dull green at the base, glabrous, the dorsal sepal oblong-ovate, 12 mm long, 6 mm wide, connate to the lateral sepals for 6 mm to form a subglobose sepaline tube, the apex acute, forwardly directed, contracted into a slender, olive green tail 4.5-6 cm long, the lateral sepals connate 25-30 mm into an oblong-ovate, bifid synsepal, 30-35 mm long, 18-19 mm wide, shallowly sulcate centrally and laterally to longitudinal convexities, the apices subacute to obtuse, contracted into slender tails 25-35 mm long; **petals** white, ovate, 7 mm long, 2.75-3.5 mm wide, dilated below the middle with thin margins, with a thick carina along labellar half near the center ending in a low, rounded callus above the base, the apex obliquely bilobed; **lip** densely spotted with purple, oblong-pandurate with marginal folds above the middle, 6 mm long, 2-2.75 mm wide, the epichile obtuse, recurved, markedly papillose, the hypochile oblong, shallowly channeled, the base subcordate, hinged beneath; **column** white, semiterete, 6 mm long, the foot 4 mm long, with an incurved extension.

PERU: Without collection data, cultivated from plants found in moss used as a packing material, cultivated by Francisco Villegas at Orquifollajes near Guarne, Colombia, 9 July 1996, *C. Luer 17989* (Holotype: MO). **Amazonas**: Distr. of Omia, Rodriguez de Mendoza, alt. 1600 m, collected by J. Meza Torres, flowered in cultivation in Munich, Germany, without date, by *W. Königer WK-77* (holotype of *M. trechsliniana*: M; clonotypes: K, UNALM, USM); purchased from J. Meza T., without collection data, flowered in cultivation by Maduro's Tropical Flowers in Cerro Punta, Panama, 18 Nov. 1998, *C. Luer 18995* (MO).



Among the members of this subsection, this species is distinguished by the tall, strict, sharply triquetrous, purple-spotted peduncle that bears a successively few-flowered raceme. The peduncle painted by Frl. Trechslin shows no spots. The flower is large with the long, deep-purple synsepal sulcate centrally as well as lateral to a longitudinal convexity along the midvein on either side. From the short sepaline tube the dorsal sepal points forward with a long, slender tail. The synsepal is shallowly concave below the middle, and convex on either side above the middle forming the narrow, central channel above the fork into acute apices with slender tails shorter than the lamina. The petals are white and expanded below the middle. The lip is divided by prominent marginal folds above the middle. The epichile is markedly papillose and recurved.

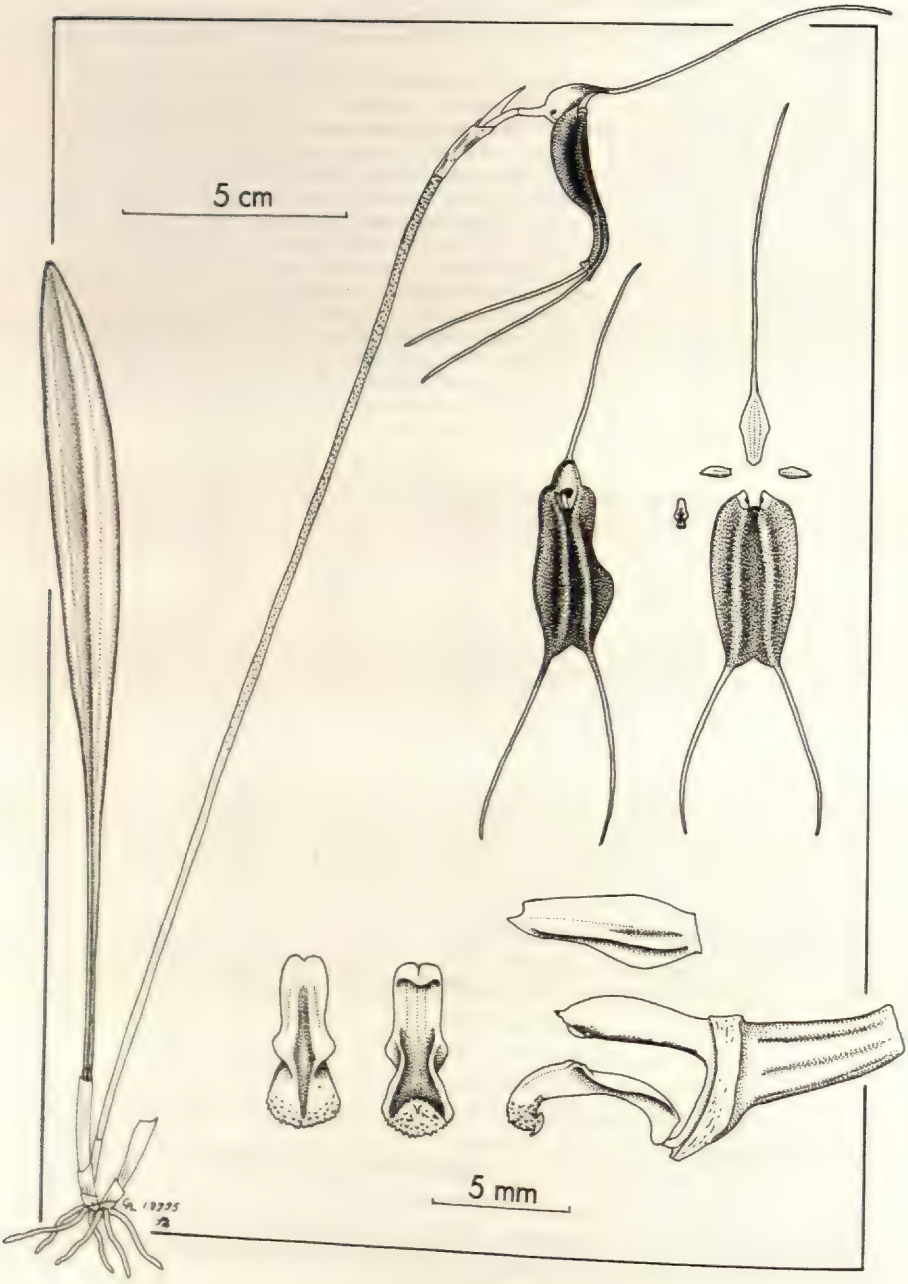


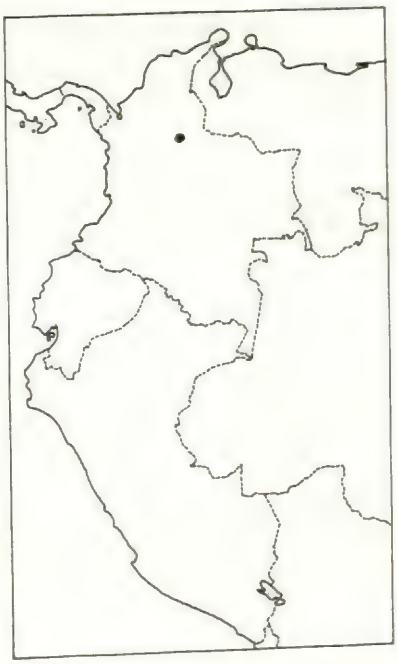

Plate 14. Masdevallia bryophila

**Masdevallia buccinator** Rchb.f. & Warsz., Bonplandia 2: 115, 1854.

Ety.: From the Latin *buccinator*, "a horn blower," referring to the resemblance of the inflated lateral sepals to the puffed-out cheeks of a horn blower.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 10-15 cm long including the indistinct petiole 1.5-2 cm long, the blade narrowly obovate, subacute to obtuse, 2.3-3 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a successively several-flowered raceme, up to 5 cm long, often with 2 simultaneous flowers, borne by a stout, erect, triquetrous peduncle 12-18 cm long, with a bract at the base, from the base of the ramicaul; floral bracts tubular, imbricating, 1.5-2 cm long; pedicel 2.5 cm long; ovary 5-6 mm long, triquetrous; **sepals** dull yellow-green, more or less suffused with brown, minutely pubescent within, the dorsal sepal obovate, 14 mm long, 7 mm wide, connate to the lateral sepals for 12 mm to form a broad, sepaline cup, the apex obtuse to rounded, contracted into a slender, erect, orange tail 6 cm long, the lateral sepals subobovate, oblique, inflated above the middle, 20 mm long, 18 mm wide, connate 10 mm to form a short mentum with the column-foot and a conspicuous, inflated secondary mentum, the apices obtuse, contracted into descending tails 4 cm long; **petals** yellow white, oblong, 7.5 mm long, 2.5 mm wide, the apex subtruncate, tridenticulate, with a low, longitudinal callus above the labellar margin; **lip** cream-colored, diffusely dotted with purple, microscopically pubescent, oblong-subpandurate, 7 mm long, 2.75 mm wide, with erect, marginal folds near the middle, the epichile ovate, obtuse, abruptly contracted into a short apiculum, the hypochile oblong with the base subcordate, hinged beneath; **column** greenish white, semiterete, 6 mm long, the foot 2.5 mm long with a short, incurved extension.

COLOMBIA: **Santander**, Old province of Ocaña: near Pamplona, La Baja, alt. 2600 m, 1849, *L. Schlim 1181* (Holotype: W; Isotypes: BR, P); same locality, alt. 8500 ft., 1848, *L. Schlim 1703* (K, LE); same locality, near the La Baja gold mines, alt. 2500 m, 20 May 1982, *C. Luer, R. Escobar & D. Portillo 7901* (SEL); epiphytic in oak forest near Cachirí, alt. 2500 m, collected by E. Valencia, Dec. 1987, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13016* (MO).



This rare species was collected independently by both Schlim and Warszewicz near the middle of the nineteenth century near the old gold mines at La Baja near Pamplona in the Eastern Cordillera of Colombia. *Masdevallia buccinator* remained known only by the original collections. It had never been in cultivation. In 1982, a successful search was made in the narrow valley at La Baja where gold mines are still present. For an account of its rediscovery as well as that of others, interested readers will find the details in *Orquideología*, volume 16, 1985, pages 63 to 125, by Rodrigo Escobar.

The unique flowers of this species are usually borne two at a time in a congested raceme atop a peduncle that surpasses the leaf. The sepals are deeply connate into an oddly shaped sepaline tube. The lateral sepals are inflated above the middle with their anterior margins held closely together and forming a deep, obtusely angled mentum.

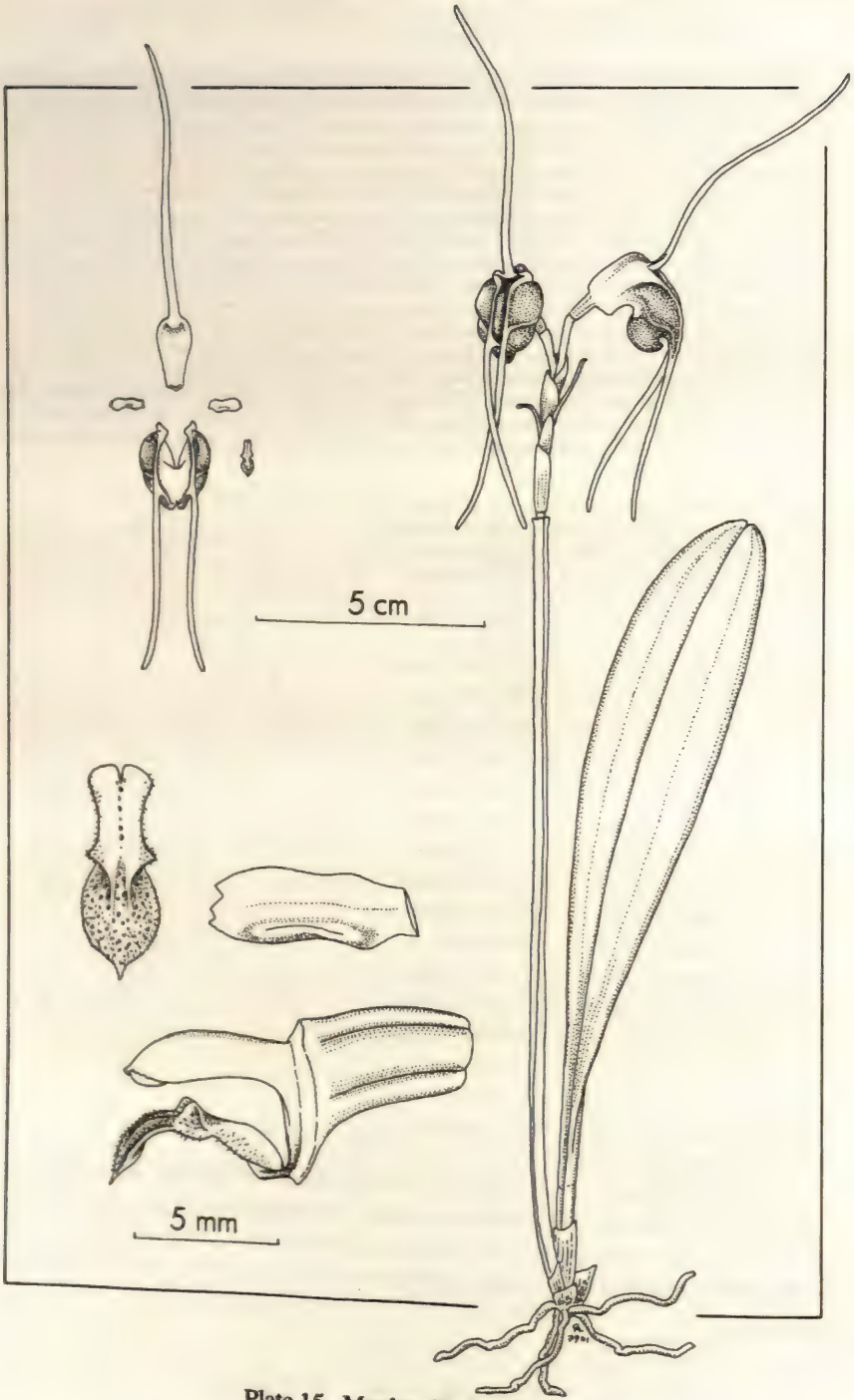



Plate 15. Masdevallia buccinator

**Masdevallia calagrasalis** Luer, Phytologia 57: 61, 1985.

Ety.: Named for the Río Calagrás, plus the Latin *-alis*, "pertaining to," in the vicinity of which this species was discovered.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-12 cm long including a petiole 1.5-2.5 cm long, the blade narrowly elliptical, subacute to obtuse, 1.5-2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a congested, successively few-flowered raceme borne by an erect, triquetrous peduncle 9-12.5 cm long, subtended by a short bract, from near the base of a ramicaul; floral bracts oblique, imbricating, 10-13 mm long; pedicel 10-15 mm long; ovary 5-6 mm long; **sepals** dark purple, rigid, fleshy, glabrous, the dorsal sepal narrowly oblong, 17 mm long, 5.5-6 mm wide, connate to the lateral sepals for 14-15 mm to form a subconical, sepaline tube, the obtuse free portion contracted into a forwardly directed, thick, yellow-green tail 15-17 mm long, the lateral sepals obovate, oblique, connate 12-13 mm, 15-18 mm long, 15-19 mm wide together, forming a broad, secondary mentum and a smaller primary mentum beneath the column-foot, the subacute apices near but not approximate, contracted into thick, yellow-green tails 10-12 mm long; **petals** dark purple, oblong, 6.5 mm long, 1-2 mm wide, the apex obtuse or rounded with a notch, the labellar half with a marginal carina curving away from the margin below the middle, then curving into an obtuse appendage 1 mm long at the base; **lip** yellowish, diffusely spotted with purple-brown, oblong-subpandurate, 6.5 mm long, 2.25 mm wide, with obtuse marginal folds just above the middle, the disc sulcate centrally, the epichile ovate, obtuse, minutely verrucose and denticulate, the hypochile oblong with the base subcordate, hinged below; **column** suffused with purple, semiterete, 6 mm long, the foot stout with a short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest near Río Calagrás north of Gualaquiza, alt. 1500 m, collected Jan. 1980 by M. Schrödl et al., cultivated in Stockholm, Sweden, 15 Aug. 1984, *C. Luer 10407* (Holotype: MO); same area, alt. 1500 m, collected 19 Sept. 1980, by C. Luer et al., cultivated at Spielberg, West Germany, by *B. Würstle s.n.* (SEL; Herb. H. Königer); without locality or collector, cultivated by Herr Hautau in West Germany, 7 Sept. 1981, *C. Luer 6462* (SEL; Herb. H. Königer).

This species occurs locally in the tall, wet forests of southeastern Ecuador. It is closely allied to *M. guerrieroi*, which is known to occur in the forests farther south in the same province. Both species are characterized by close, short, thick sepaline tails, and petals with a descending, conical tooth at the base which are unusual in the subsection.

*Masdevallia calagrasalis* is distinguished by the narrower dorsal sepal that is deeply connate to the synsepal. The apices are near and acuminate into the tails. The broader dorsal sepal of *M. guerrieroi* is connate only to the middle into a rigid, box-like synsepal with approximate apices with diverging tails.

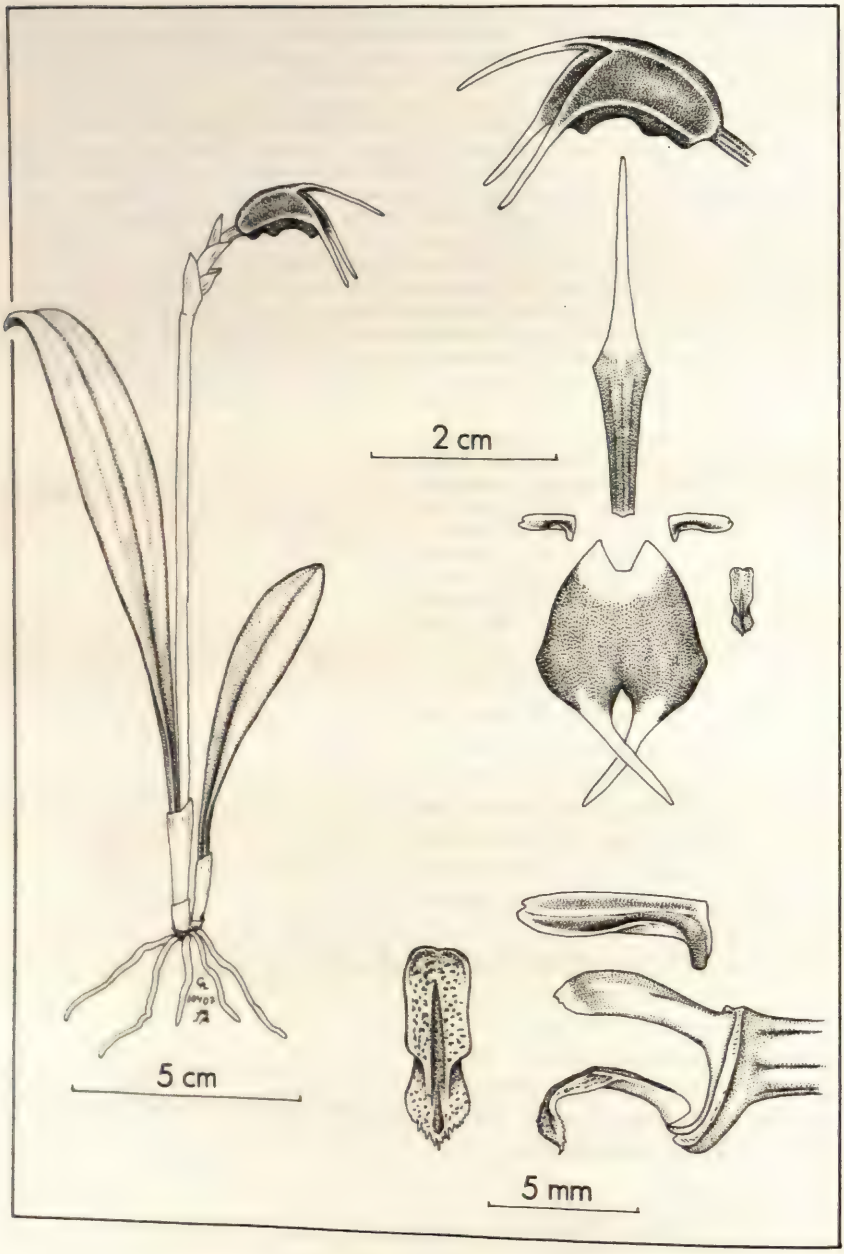


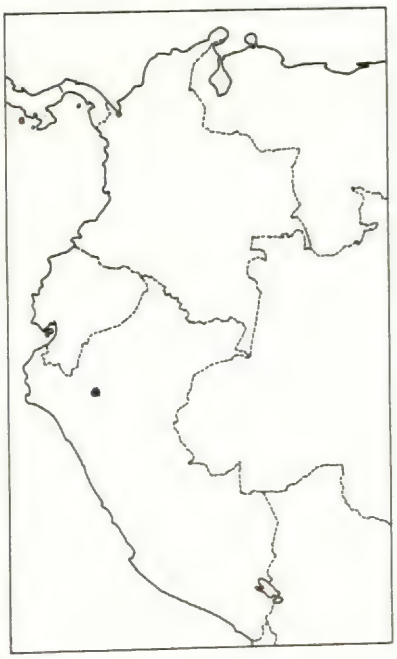

Plate 16. Masdevallia calagrasalis

**Masdevallia cardiantha** Königer, Die Orchidee 31: 113, 1980; emend. 36: 87, 1985.

Ety.: From the Greek *cardianthos*, "heart-shaped flower," referring to the synsepal.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-14 cm long including the 1.5-3 cm long petiole, 1.2-2 cm wide, the blade narrowly elliptical, acute, narrowly cuneate below into the slender petiole. **Inflorescence** a succession of single flowers in a congested, few-flowered raceme up to 3 cm long, borne by a slender, erect, triquetrous peduncle 15-21 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 10-15 mm long; pedicel 8-15 mm long; ovary 4 mm long; **dorsal sepal** yellow-green, obovate, 10 mm long, 6 mm wide, connate to the lateral sepals for 4 mm to form a short, cylindrical tube, the free portion triangular, acute, acuminate into an erect, slender tail 3-3.5 cm long; *lateral sepals* purple, finely spotted with darker purple, smooth, connate 15 mm into an ovate-cordate lamina 20 mm long, 14 mm wide, forming a short mentum with the column-foot and a small, secondary mentum at the compressed, bifid apex, the apices approximate, acute, contracted into slender, yellow-green tails 1.5-2 cm long; **petals** white, oblong-ovate, acute, 6 mm long, 2.5 mm wide, the labellar margin with a low, longitudinal callus terminating in a prominent, rounded process occupying the basal third of the petal; **lip** red, intensely spotted with purple, oblong-obovate, 6.25 mm long, 2.5 mm wide, with oblique, obtuse, marginal folds near the middle, sulcate between, the epichile ovate, acute, minutely verrucose, the hypochile oblong, truncate, hinged beneath; **column** white, with purple margins, semiterete, 4.5 mm long, the foot 3.5 mm long with a short, incurved extension.

PERU: **Amazonas**: Bongará, epiphytic between Chachapoyas and Pomacochas, alt. 2100 m, Aug. 1979, *W. Königer, H. Königer, J. Mesa et al. K-21c* (Holotype: SEL; clonotypes K, M, USM, W, Herb. H. Königer); same collection, cultivated by W. Königer, Nov. 1979, *C. Luer 4855* (SEL); same collection, cultivated by W. Königer, 17 Apr. 1988, *C. Luer 13238* (MO).



This species is apparently endemic in northern Peru. It is most similar to *M. carruthersiana* from neighboring, southern Ecuador.

*Masdevallia cardiantha* is characterized by the slender, triquetrous peduncle longer than the leaves that bears a succession of single flowers. With the lateral sepals the dorsal sepal is connate into a short, cylindrical tube. The dorsal sepal is yellow with a slender tail longer than the tails of the synsepal. The lateral sepals are dark purple, and deeply connate into a cordate synsepal that is shallowly sulcate along the longitudinal veins. The apices of the bifid lamina are approximate. The callus of the petals forms a large, rounded swelling on the basal third.

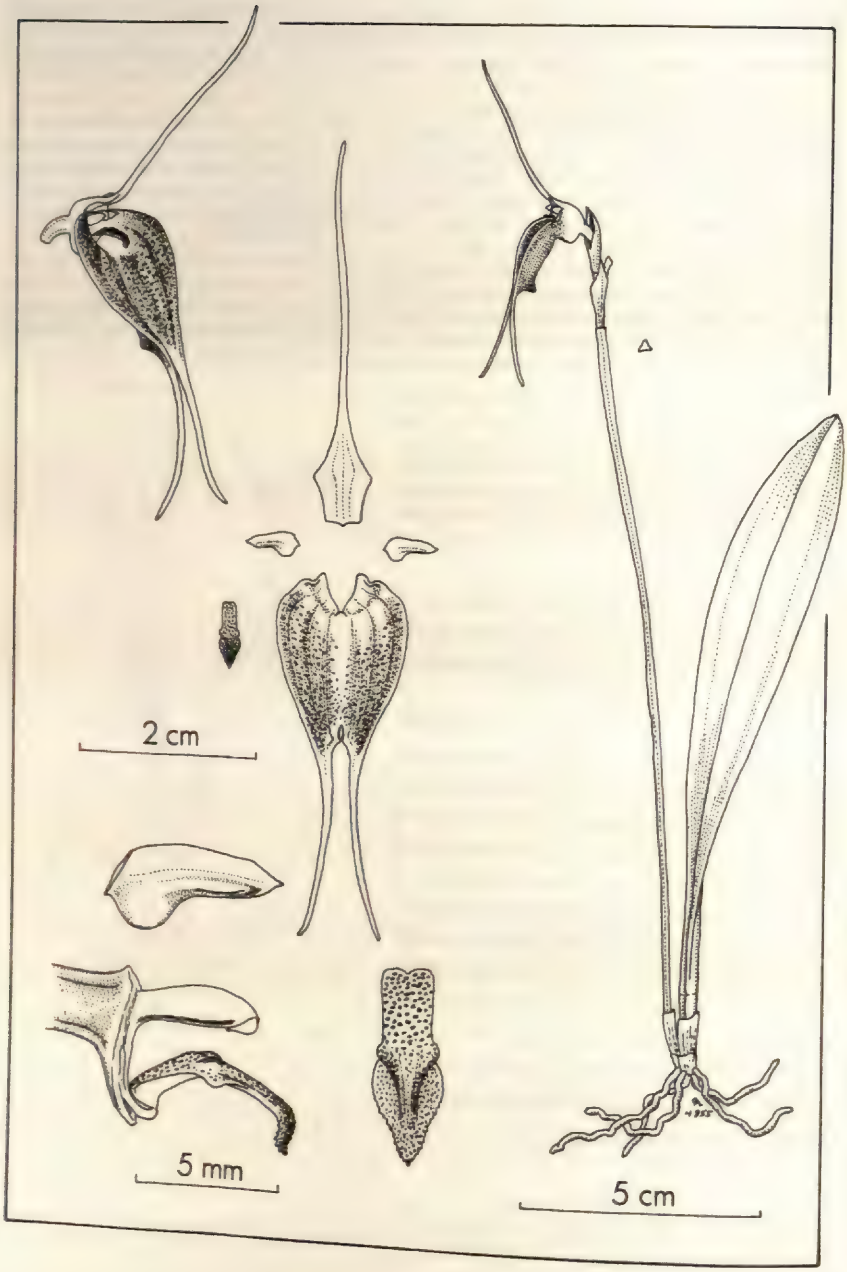



Plate 17. Masdevallia cardiantha

**Masdevallia carruthersiana** Lehm. & Kraenzl., Bull. Misc. Inform. 99, 1925.

Ety.: Named in honor William Carruthers of the department of botany at the British Museum.

Syn.: *Masdevallia margaretae* Luer, Phytologia 54: 381, 1983.

Ety.: Named for Mrs. Margaret Herring of Seattle, WA, who submitted the species to the O.I.C.

Syn.: *Masdevallia torulosa* Königer & J.Portilla, Arcula 4: 104, 1995.

Ety.: From the Latin *torulosus*, "having a series of swellings and constrictions, like beads," a misnomer for the longitudinally furrowed or grooved synsepal.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 7-15 cm long including an indistinct petiole 2-4 cm long, the blade narrowly elliptical, subacute to obtuse, 2-3.3 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a successively flowered, congested raceme up to 4 cm long, borne by an erect, triangular peduncle 18-30 cm long, with a bract at the base, from the base of a ramicaul; floral bracts imbricating, 10-15 mm long; pedicel 8-16 mm long; ovary 5-6 mm long; **sepals** yellow-orange, suffused with purple, the dorsal sepal triangular-ovate, 10-12 mm long, 6-8 mm wide, connate basally to the lateral sepals for 2-3 mm to form a shallow, gaping, sepaline cup, the acute apex contracted into an erect, slender, yellow or orange tail 2.5-4 cm long, the lateral sepals deep purple, shortly to spiculate-pubescent, connate 12-16 mm into an oblong lamina, suborbicular when expanded, with revolute sides, 19-23 mm long, 12 mm wide unexpanded, sulcate centrally, sulcate along the veins and longitudinally convex between, the apices obtuse, contracted into slender tails 13-25 mm long; **petals** white, oblong, 6.5-7 mm long, 1.5-2 mm wide, the apex acute, obscurely 2- to 3-dentate-apiculate, the labellar half with a longitudinal lamella ending in a low, rounded callus above the base; **lip** white, dotted diffusely with purple, elliptical-pandurate, arcuate, with obtuse, wing-like, marginal folds near the middle, 6-7 mm long, 2.5-3 mm wide, 3-4 mm wide across the marginal folds, the epichile ovate, erose, verrucose, with the apex decurved, long-apiculate, the hypochile oblong, truncate, hinged from the end to the column-foot; **column** light yellow, semiterete, 5.5-6.5 mm long, the foot 2 mm long, with an incurved extension.

ECUADOR: **Morona-Santiago**: near Chiguinda, east of Sigsig, alt. 1600-1900 m, May 1887, *F.C. Lehmann 6530* (Holotype: K, Isotypes: AMES, NY); Oriente of Cuenca, alt. 1800-2000 m, cultivated Nov. 1980, *A. Andreetta 14* (SEL); cloud forest near Parroquia Amaluza, east of Paute, alt. 1800 m, May 1973, collected by B. Malo, cultivated 11 July 1977, *C. Luer 1684* (SEL); Plan del Milagro between Limón and Indanza, alt. 1600-1700 m, 24 Apr. 1985, *G. Harling & L. Andersson 24532* (GB); epiphytic in forest north of Gualaquiza, alt. 1700 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11884* (MO); same area, 17 Jan. 1986, alt. 1800 m, *S. Dalström & T. Höijer 1055* (MO); same area, 17 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13417* (MO); same area, alt. 1800 m, 31 Jan. 1989, *S. Dalström & T. Höijer 1214* (MO); same area, alt. 1700 m, collected by J. Portilla, flowered in Munich, Germany, by *W. Königer WK-52* (holotype of *M. torulosa*: M; clonotypes: K, QCA); same area, purchased from J. Portilla, cultivated in England, 31 July 1999, *R. Barrow s.n.* (MO), C. Luer illustr. 19237. **Zamora-Chinchipe**: Cordillera del Condor, Patchicutza, alt. 1200-1500 m, June 1991, *A. Hirtz 5520* (MO); Cordillera del Condor, Feb. 1995, *A. Hirtz 6202* (MO). Without locality, erroneously reported from Colombia, cultivated by M. Herring, 8 July 1982, *C. Luer 8075* (holotype of *M. margaretae*: SEL).

The watercolor painting of this species by F.C. Lehmann (*t. 442*), made in 1887, and his herbarium specimens lay unpublished for nearly half a century. It is locally common but restricted to the mountainous forests of southeastern Ecuador.

*Masdevallia carruthersiana* is characterized by the long, triquetrous peduncle; a congested raceme of successive flowers with a shallow cup and a broad, verrucose to spiculate synsepal that is longitudinally sulcate along the veins, and with the margins of the sides recurved. The lip is distinguished by prominent, wing-like marginal folds, and the epichile is convex, markedly verrucose, and apiculate. Minor variations of the lip occur.

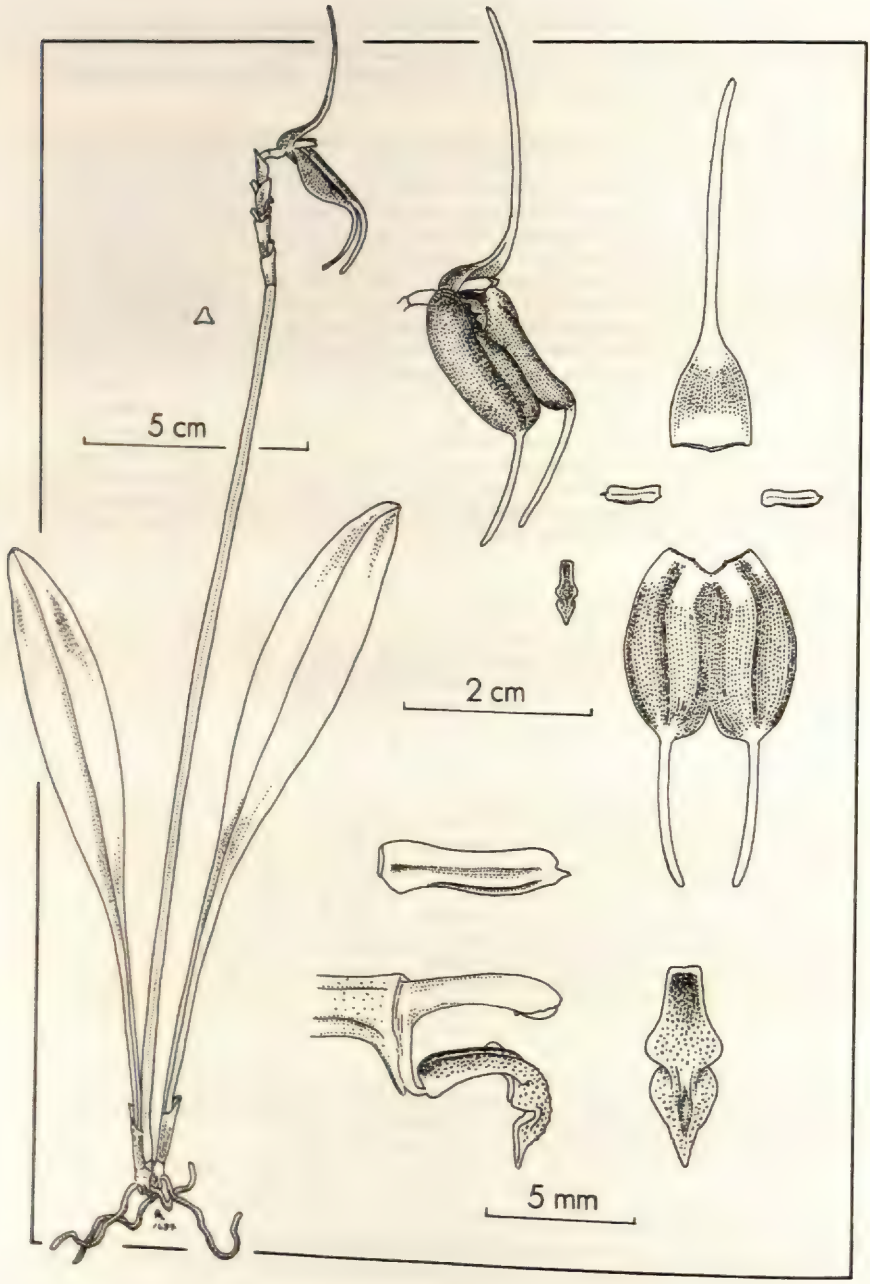



Plate 18. Masdevallia carruthersiana

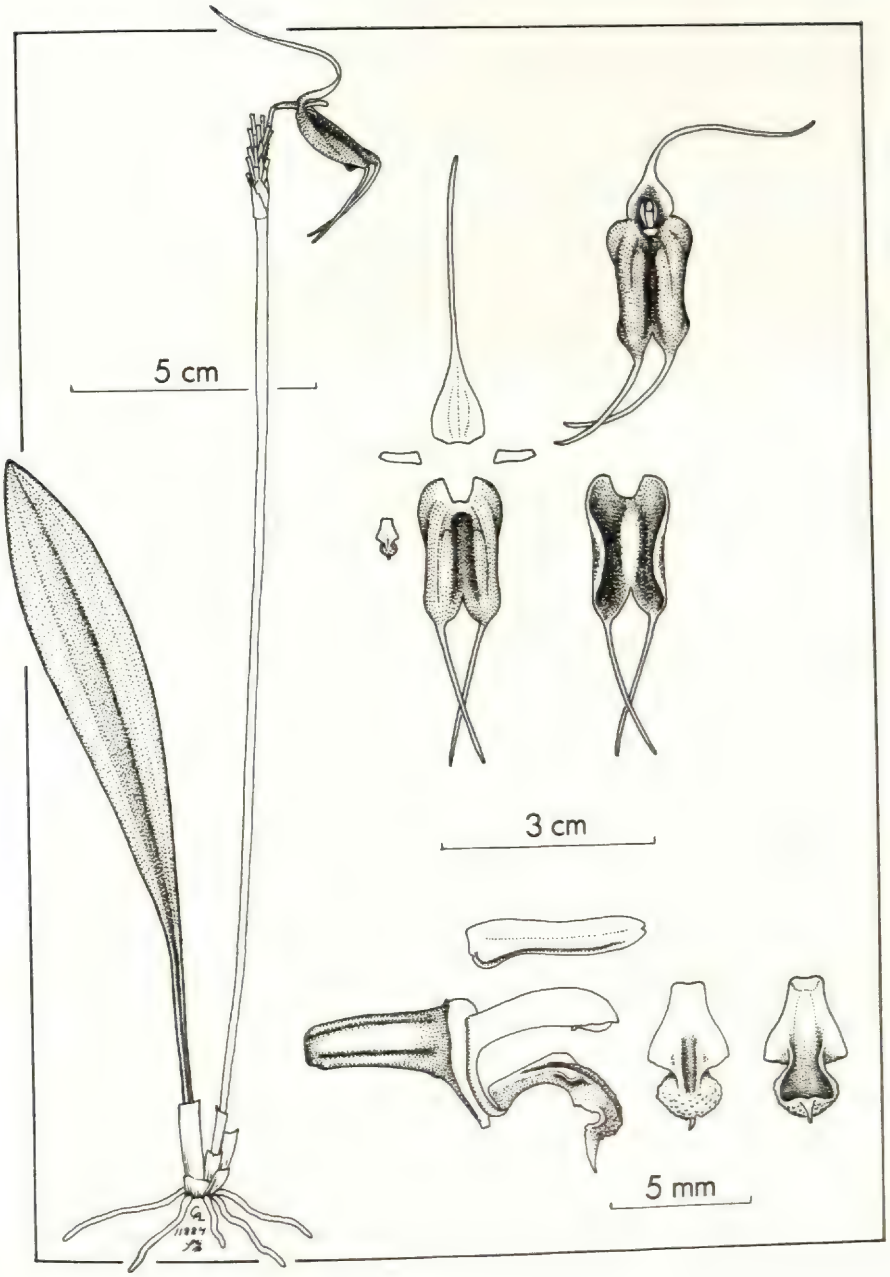



Plate 19. Masdevallia carruthersiana

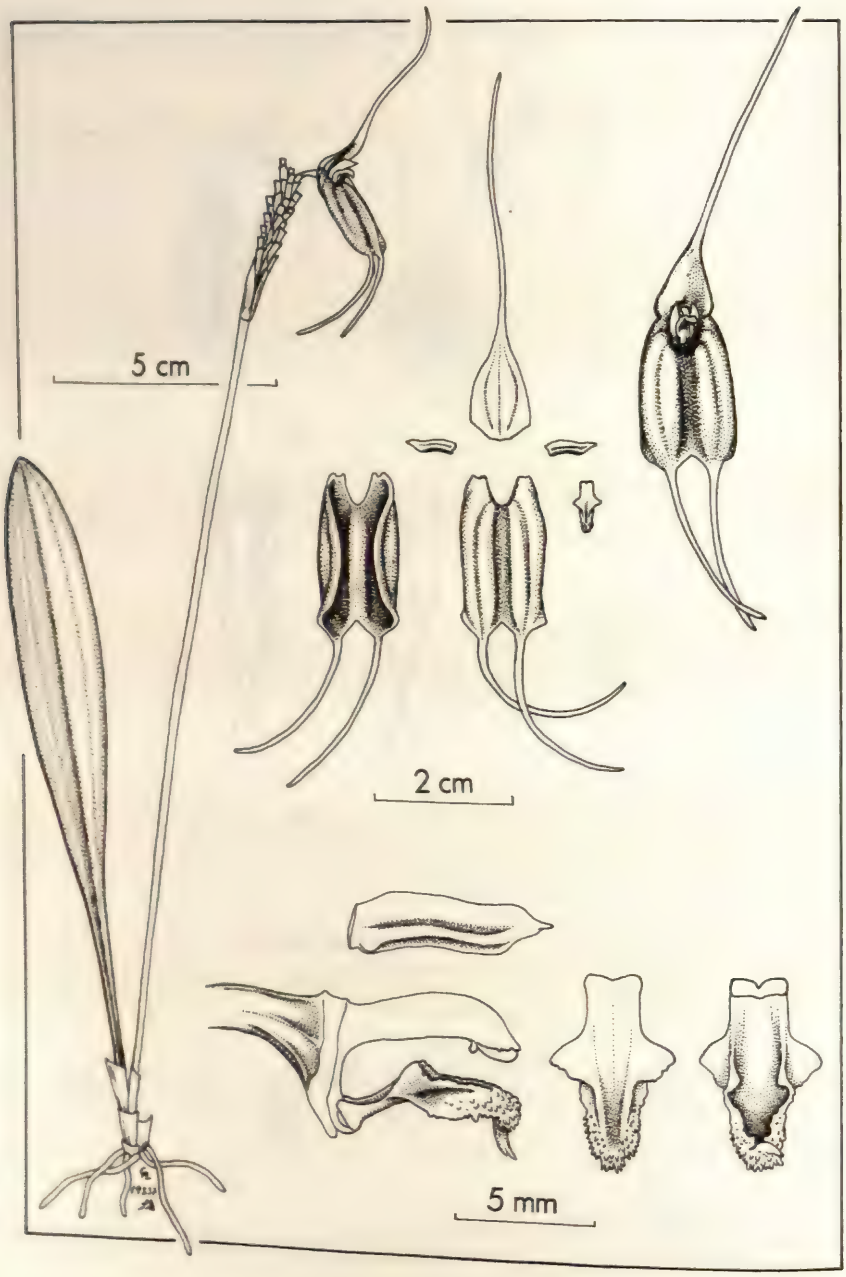


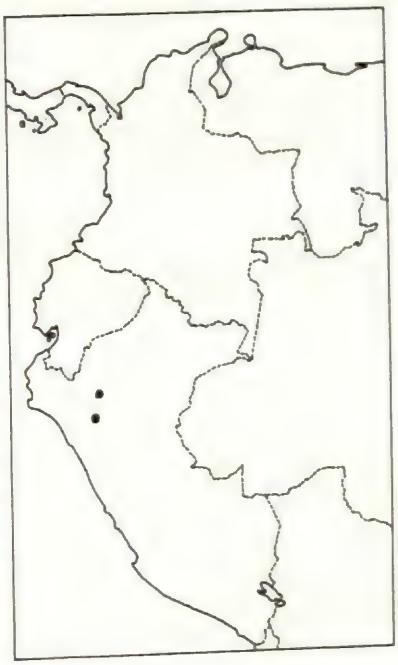

Plate 20. Masdevallia carruthersiana
(M. torulosa)

**Masdevallia cinnamomea** Rchb.f., Bonplandia 3: 225, 1855.

Ety.: From the Latin *cinnamomeus*, "cinnamon-colored," referring to the color of the flower.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 2.5-5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, 10-20 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, acute, 1.5-2 cm wide, gradually narrowed below into the indistinctly petiolate base. **Inflorescence** a simultaneously 2- to 3-flowered, congested raceme ca. 1.5 cm long, borne by a slender, erect, triquetrous peduncle, 12-20 cm long, with a bract at the base, from low on the ramicaul; floral bracts tubular, imbricating, 15-20 mm long; pedicel 15-27 mm long; ovary 5 mm long; **sepals** yellow, glabrous and suffused with brown externally, minutely verrucose and diffusely dotted with brown within, the dorsal sepal obovate, ca. 15 mm long, 6 mm wide, connate to the lateral sepals for 6-7 mm to form a cylindrical, sepaline tube, the apex triangular, acute, attenuated into a slender, erect, yellow-green tail 4-6 cm long, the lateral sepals narrowly ovate, oblique, attenuate, connate 7 mm, 5-7 cm long including the attenuated, tailed apices, 7 mm wide; **petals** white, oblong-ovate, acute, 5.5 mm long, 1.5-2 mm wide, the labellar half with a longitudinal callus ending in an obtuse angle above the base; **lip** white, dotted with purple, oblong-subpanduriform, 6 mm long, 2-2.5 mm wide, with acute, marginal folds near the middle, shallowly sulcate between, the epichile ovate, acute, apiculate, minutely verrucose, the hypochile oblong, truncate, hinged beneath; **column** greenish white, suffused with rose, semiterete, 5 mm long, the foot 3 mm long with an incurved extension.

PERU: **Amazonas**: Chachapoyas, Dec. 1846, *A. Matthews s.n.* (Holotype: G: Isopypes; BM, G, K, NY, W); Leimebamba, alt. 2400 m, 21 Dec. 1962, *F. Woytkowski 7785* (MO); Chachapoyas, above Leimebamba on road to Balsas, Cerro Cala Cala, alt. 2400 m, 13 Oct. 1964, *P.C. Hutchinson & J.K. Wright 6907* (AMES, MO, NY, USC, USM); between Chachapoyas and Leimebamba alt. 2500 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle et al. K-7c* (K, M, SEL, USM, W, Herb. H. Königer); same collection, cultivated by Königer in Munich, Germany, 21 May 1980, *C. Luer 4074* (SEL).



One of the early collector Matthews' discoveries, this species is apparently endemic in one forested valley in northern Peru where it is not uncommon. It is characterized by the relatively large habit with slender leaves about as long as or slightly surpassed by the slender, triquetrous peduncles that bear a few, cinnamon-colored flowers simultaneously in a congested raceme. From a short sepaline tube the apices of the sepals are attenuated into slender tails. The petals are acute, and the minutely verrucose apex of the lip is also acute.

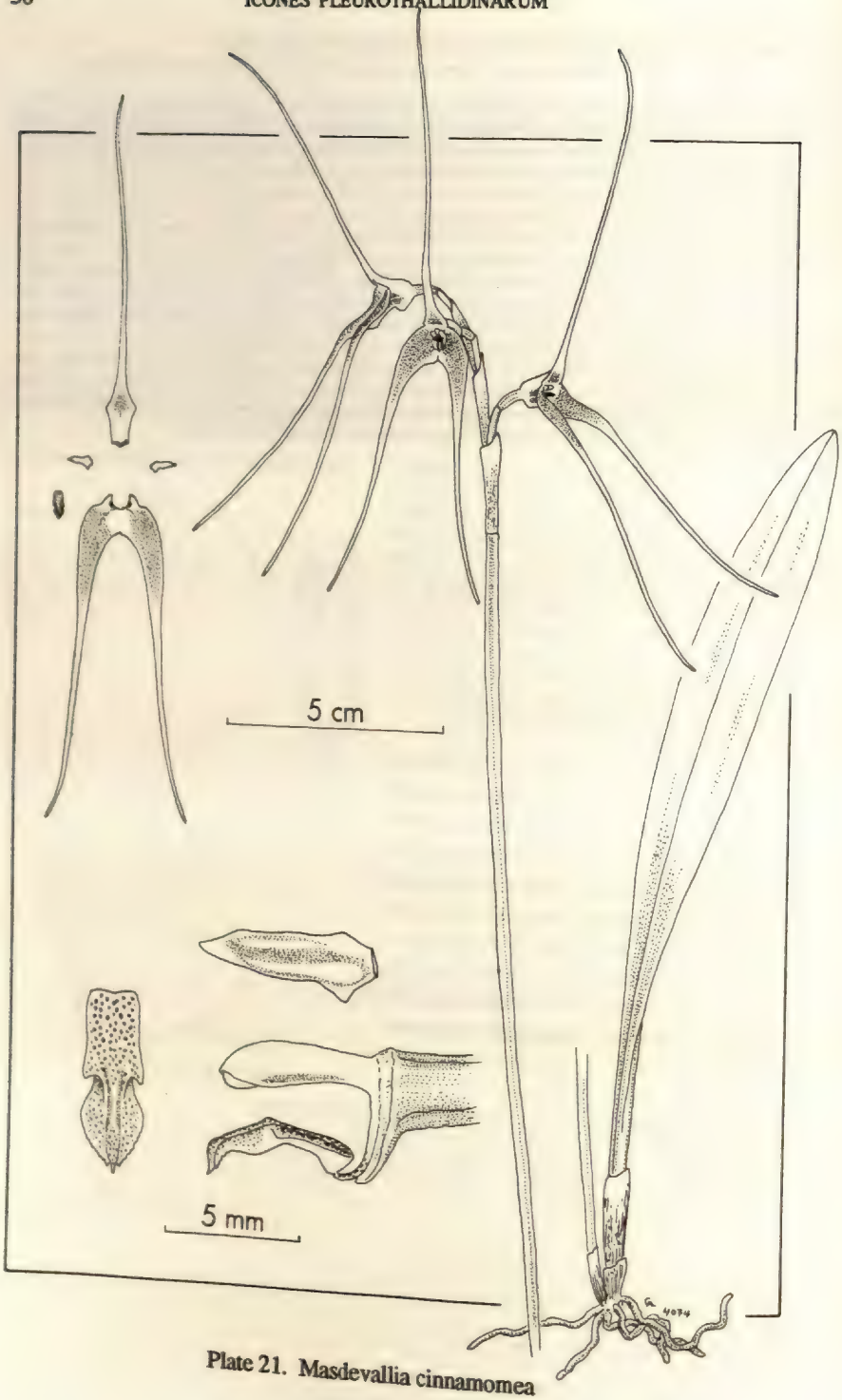


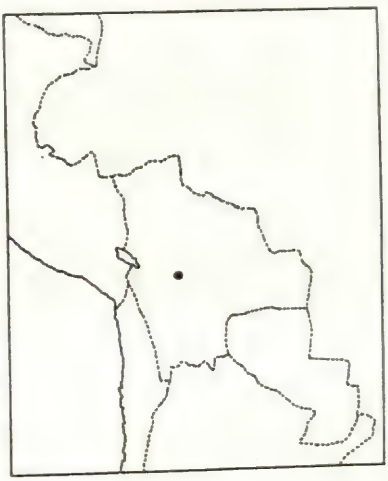

Plate 21. Masdevallia cinnamomea

**Masdevallia cocapatae** Luer, Teague & Vásquez, Harvard Papers in Botany 2: 55, 1997.

Ety.: Named for the village of Cocapata below which this species was discovered.

**Plant** medium in size, caespitose; roots fleshy. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, petiolate, 5-10 cm long including the petiole 0.5-1.5 cm long, the blade obovate, subacute to obtuse, 0.5-1.5 cm wide, the base gradually narrowed below into the petiole. **Inflorescence** a single flower followed by a second in a successive, congested raceme; peduncle erect, stout, sharply triquetrous, 6-7.5 cm long, from low on the ramicaul; floral bracts spotted with purple, tubular, imbricating, inflated, 11-12 mm long, 6 mm wide; pedicels 12-15 mm long; ovary 4 mm long; **sepals** fleshy, dark red-brown, glabrous, the dorsal sepal ovate, 20 mm long including the tail, 6 mm wide, connate to the lateral sepals for 7 mm to form a broad sepaline tube, the apex subacute, contracted into a thick, yellow-orange tail ca. 8 mm long, 1 mm thick, the lateral sepals ovate, subacute, 19 mm long including the tail, 6 mm wide, connate 8 mm, the apices subacute, contracted into thick, yellow-orange tails 5 mm long; **petals** white, oblong, 6 mm long, 1.8 mm wide, with the apex obtuse, obscurely lobulate, the labellar half thickened longitudinally, ending at the base; **lip** oblong-pandurate, with acute, marginal folds above the middle, 6 mm long, 2-2.5 mm wide, the epichile ovate, subacute, with three linear calli, the hypochile oblong, shallowly channeled, the base truncate, hinged on the end; **column** greenish white, semiterete, 5 mm long, the foot 2 mm long, with a short, incurved extension.

BOLIVIA: **Cochabamba**: seasonally dry remnant of forest below Cocapata, between Inquisivi and Cochabamba, alt. 2100 m, 5 Feb. 1997, cultivated by W. Teague in San Francisco, May 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18389* (Holotype: MO).



Among the members of this subsection, *M. cocapatae* is most closely related to the numerous taxa presently grouped together into the complex treated as *M. bicolor*. Although similar in habit, it is distinguished from the latter by the dark red-brown flowers with yellow-orange tails, a longer sepaline tube with the lateral sepals subacute and free beyond the tube. They are not connate into a broad synsepal beyond the tube as in the *M. bicolor* relatives. The petals are narrowly oblong. The lateral folds of the lip are acute, and the epichile is ovate and acute with three parallel calli.

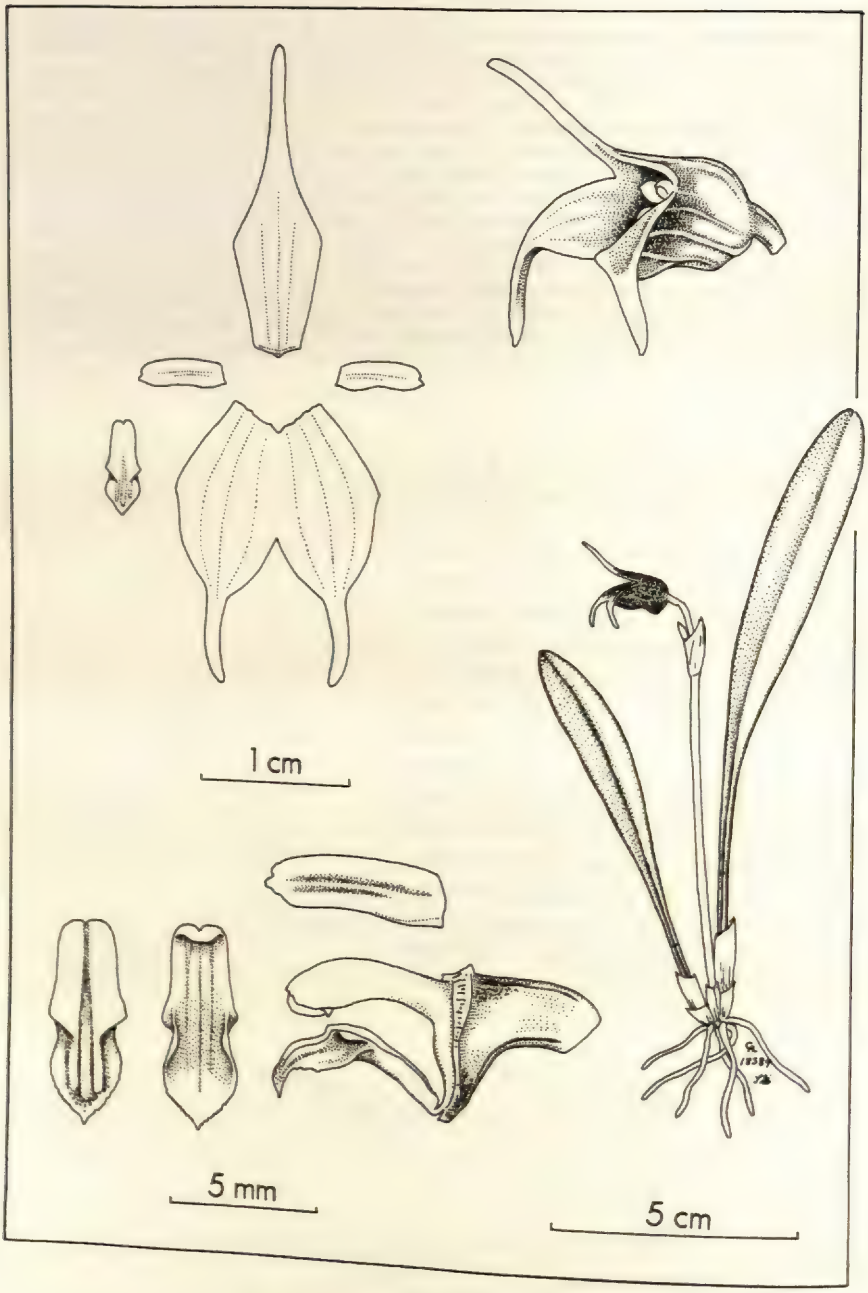
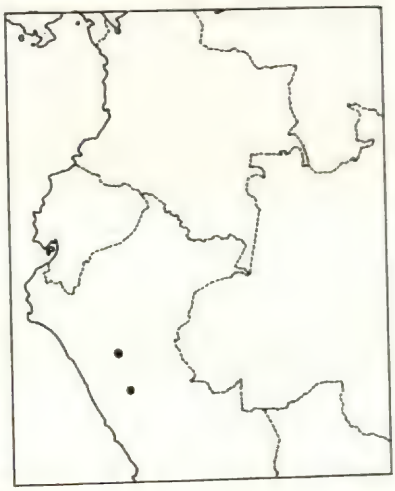



Plate 22. Masdevallia cocapatae

**Masdevallia concinna** Königer, Die Orchidee 33: 101, 1982; emend. 36: 87, 1985.

Ety.: From the Latin *concinnus*, "pretty, elegant," referring to the beauty of the flowers.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-10.5 cm long including the petiole 1-2 cm long, the blade elliptical, obtuse, 1.2-1.8 cm wide, cuneate below into the petiole. **Inflorescence** a simultaneously two-flowered raceme of showy flowers, borne by a slender, erect, triquetrous peduncle 10-11.5 cm long, with a bract at the base, from low on the ramicaul; floral bracts tubular, imbricating, 10-14 mm long; pedicels 11-16 mm long; ovary 4-5 mm long; **sepals** thin, glabrous, the dorsal sepal translucent yellow-orange, obovate, lightly concave, 13-16 mm long, 8-9 mm wide expanded, connate to the lateral sepals for 8-12 mm to form a sepaline cup, the apex rounded, abruptly contracted into an erect, slender, yellow-green tail 3.5 cm long, the lateral sepals yellow-green, variously suffused with rose, ovate, oblique, 15 mm long, connate 15 mm into an expanded lamina, 16-20 mm wide, the apices obtuse, abruptly contracted into slender, green tails 2.5 cm long; **petals** white, cartilaginous, oblong, 5 mm long, 1.5 mm wide, the apex obtuse, irregularly and minutely 2- or 3-lobed, the labellar margin thickened with a longitudinal carina produced into a short, rounded process above the base; **lip** white, diffusely suffused and dotted with red, ovate-oblong, 5-6 mm long, 2 mm wide, with acute marginal angles above the middle, the disc sulcate medially, the apical portion ovate, acute, minutely erose and verrucose, the basal portion oblong, truncate, hinged on the end; **column** white, semiterete, 4 mm long, the foot 2 mm long including a free, incurved extension.



PERU: **Huánuco**: terrestrial on the road embankment between Tingo Maria and Pucallpa, alt. 1700 m, Aug. 1979, *W. Königer, H. Königer & M. Arias K-30a* (Holotype: SEL; clonotypes K, M, USM, W, Herb. H. Königer); same collection, cultivated by W. Königer in Munich, Germany, May 1980, *C. Luer 5264* (SEL). **San Martin**: Moyobamba, collected by H.H. Morgan, July 1986, cultivated 5 May 1987, *C. Luer 12740* (MO); Zepelacio, alt. 900 m, collected by R. Villena, cultivated Dec. 1990, *D. Bennett 4854* (MO).

This species is known from only a few collections from central and northern Peru. It is closely allied to the *M. bicolor*-complex, and a similar description applies to both. Nevertheless, the two concepts are easily distinguished. Usually two simultaneous flowers are produced in a congested, few-flowered raceme. The triquetrous peduncle of *M. concinna* is usually taller and more slender than that of *M. bicolor*. The thin, translucent sepals of *M. concinna* are yellow-green, and the laterals, connate into a proportionately broader synsepal, are variously suffused with rose, but sometimes the sepals are yellow and purple as in *M. bicolor*. The petals and lip are not remarkably different from those of *M. bicolor*.

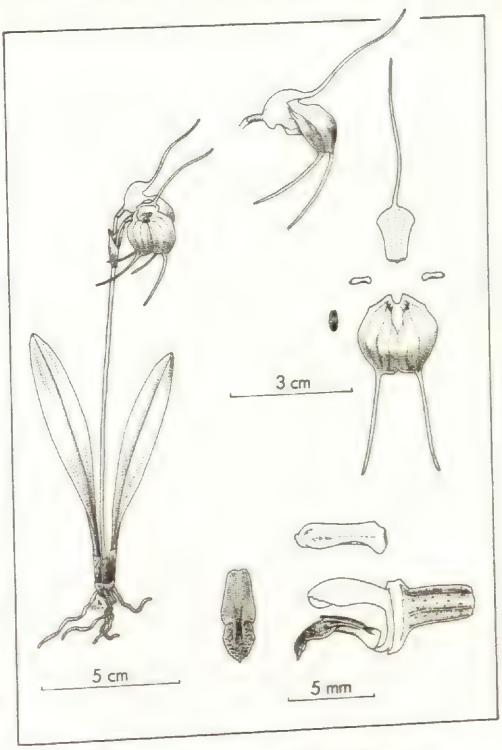



Plate 23. Masdevallia concinna

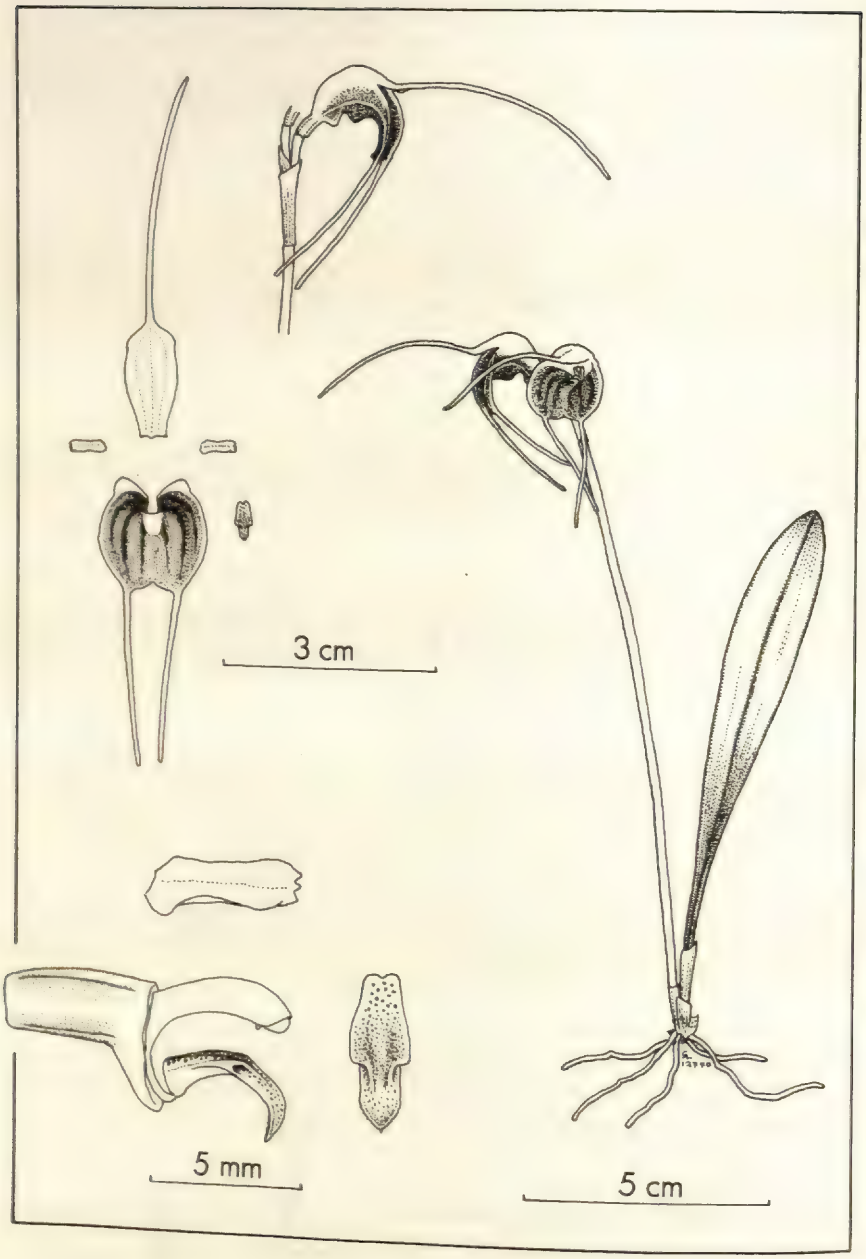



Plate 24. Masdevallia concinna

**Masdevallia cuprea** Lindl., Edwards' Bot. Reg. 29: Misc, 81, 1843.

Ety.: From the Latin *cupreus*, "coppery," referring to the brownish purple color of the flowers.

Syn.: *Masdevallia cayennensis* Rchb.f., Allg. Gartenzeitung 23: 242, 1855.
Ety.: Named for the community of Cayenne near where the species was discovered.

Syn.: *Masdevallia hepatica* Luer, Phytologia 42:462, 1979.
Ety.: From the Latin *hepaticus*, "liver-colored," referring to the color of the flowers.

Syn.: *Masdevallia cuprea* subsp. *hepatica* (Luer) Luer, Lindleyana 3: 21, 1988.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-13 cm long including an indistinct petiole 1-2.5 cm long, the blade narrowly elliptical, subacute, 1-2 cm wide, gradually narrowed below into the slender petiole. **Inflorescence** a congested, successively few-flowered raceme borne by a slender, triquetrous peduncle 6-11 cm long, with a bract at the base, from the base of a ramicaul; floral bracts imbricating, tubular, 5-9 mm long; pedicel 7-8 mm long; ovary 3-5 mm long; **sepals** glabrous externally, minutely pubescent within, the dorsal sepal dull yellow to dull yellow-green, more or less dotted or suffused with dull purple, obovate, 8-9 mm long, 5-6 mm wide, connate to the lateral sepals for 5-7 mm to form a cylindrical tube, the free portion triangular, the broad, subacute apex produced into a thick, orange-brown to yellow-orange, forwardly directed tail ca. 10 mm long, the lateral sepals dull reddish purple-brown, yellowish toward the apices, connate 11-13 mm into a broadly ovate, bifid lamina 13-18 mm long, 12-14 mm wide, forming a mentum with the column-foot, the free apices triangular, subacute, 2-5 mm long; **petals** light yellow-green, suffused and speckled with red-purple, oblong, 5-6 mm long, 1.5-2 mm wide, the obtuse apex minutely apiculate, the labellar half with a low, longitudinal callus terminating in a low, rounded swelling at the base; **lip** dull tan to yellow-orange, diffusely dotted with red-purple, oblong-ligulate, 6-7 mm long, 2-2.25 mm wide, with a pair of marginal folds above the middle, the apex subacute to obtuse, lightly verrucose, the base subcordate, hinged beneath; **column** yellow, suffused with red marginally, semiterete, 4-5 mm long, the foot 3 mm long with a short, incurved extension.

FRENCH GUIANA: Cayenne, without known collector or specific locality, cultivated at Hamburg, s.n. (Holotype: K, Isotype: P); Cayenne, without known collector or specific locality, cultivated at the School of Medicine, Paris, 28 Oct. 1853, by *M.A. Riviere s.n.* (holotype of *M. cayennensis*: P; isotype: W); without locality, 13 Mar. 1914, *R. Benoist 906* (P); near Grand Tamouri, 13 Nov. 1968, *Oldeman & Sastre 221* (RJ); coastal northwest corner of Guyane á vol d'oiseau de Mena, 11 Feb. 1977, *Y. Veyret 1548* (CAY, P); Mount Galboa, alt. 670 m, 10 Jan. 1986, *J.J. de Granville, C. Feuillet et al. 8526* (CAY, B, NY, P, U, US); Mont Atachi Bacca, SE de Gobaya Soula, alt. 650 m, 16 Jan. 1989, *J.J. de Granville, G. Cremers et al. 10700* (CAY, B, NY, P, US); Atachi Bacca Berge, Itany River, alt. 100 m, *Leuenberger & Hagemann s.n.* (B); Montagnes de la Trinité, Bassin de la Mana, alt. 440, 16 Mar. 1992, *G. Cremers 12757* (CAY); Camp Eugène, Bassin du Sinnamary, alt. 70 m, 3 Feb. 1995, *G. Cremers & J.J. De Granville 13621* (CAY); Montagne de la Trinité, 6 Feb. 1984, *De Granville et al. 6548* (CAY, P, U); Saül, Pic Matecho, 22 Jan. 1980, *G. Cremers 6170* (CAY, P).
SURINAME: Brownberg, alt. 500 m, collected by R. Determann, cultivated at SEL, 8 Oct. 1981, *C. Luer 6527* (SEL).
BRAZIL: Territorio do Amapa *fide* G. Pabst.
ECUADOR: **Pastaza**: epiphytic in rain forest 20 km east of Puyo, alt. 1000 m, 1977, collected by A. Hirtz, cultivated in Quito 16 Feb. 1978, *C. Luer 2888* (holotype of *M. hepatica*: SEL); Jatunyacu, alt. 800 m, Nov. 1991, *A. Hirtz 5588* (MO). **Morona-Santiago**: Cordillera del Cutucú, alt. 800 m, *A. Hirtz & X. Hirtz 4349* (MO); Río Calagrás, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 16 May 1988, *C. Luer 13376* (MO); new road between Mendez and Morona, alt. 900 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4144* (MO).
PERU: **Loreto**: Puerto Boquerón, Ucayali, on rocks, alt. 300 m, collected by M. Arias, flowered in cultivation by W. Königer in Munich, Germany, 29 Aug. 1982, *C. Luer 8119* (SEL); Boquerón Padre Abad, alt. 300 m, collected by M. Arias, Oct. 1981, cultivated in Munich, Germany, 10 Aug. 1984, by W. Königer, *C. Luer 10403* (MO).

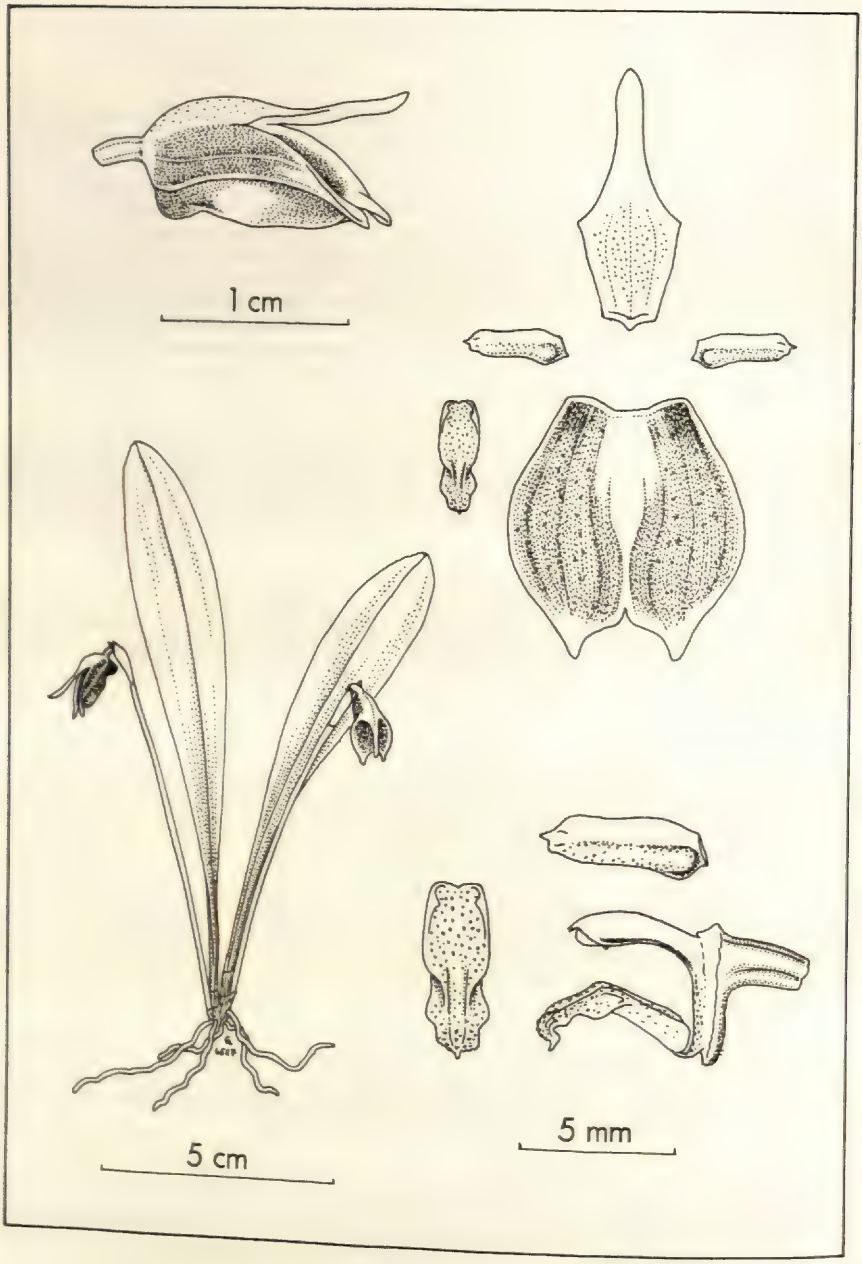



Plate 25. Masdevallia cuprea

Plants of this species were first imported into Europe before 1843 from an unrecorded collector in Cayenne, French Guiana. It was from a plant that flowered at the Hamburg Botanic Garden in Germany, from which material was forwarded to Lindley and subsequently described by him. A plant from Cayenne cultivated in the garden of the School of Medicine in Paris provided Reichenbach with material for his *M. cayennensis*.

This species is variable in its wide distribution from the warm lowlands of the Guianas and northern Brazil along the lower slopes of the Andes in the upper Amazon valley into Ecuador and northern Peru. In Peru it seems to grade into the pleomorphic *M. weberbaueri*, where intermediate forms are encountered.

*Masdevallia cuprea* is characterized by a habit similar to most other small to medium-sized species of the genus. The peduncles vary in length, from shorter than the leaves, as in typical plants from the Guianas, to longer than the leaves in a few collections from Amazonian Ecuador and Peru. The purplish flowers are borne in slow succession. The apices of the lateral sepals are obtuse and "tailless." Often a slight narrowing below the tip imparts a "nipple-like" appearance, especially in plants from the western area of the distribution. The petals are oblong with the obtuse tip obscurely and variably notched or toothed. The lips are divided by lateral folds near the middle, but minor variations are legion. The flowers remind one of *M. bicolor* without tails.

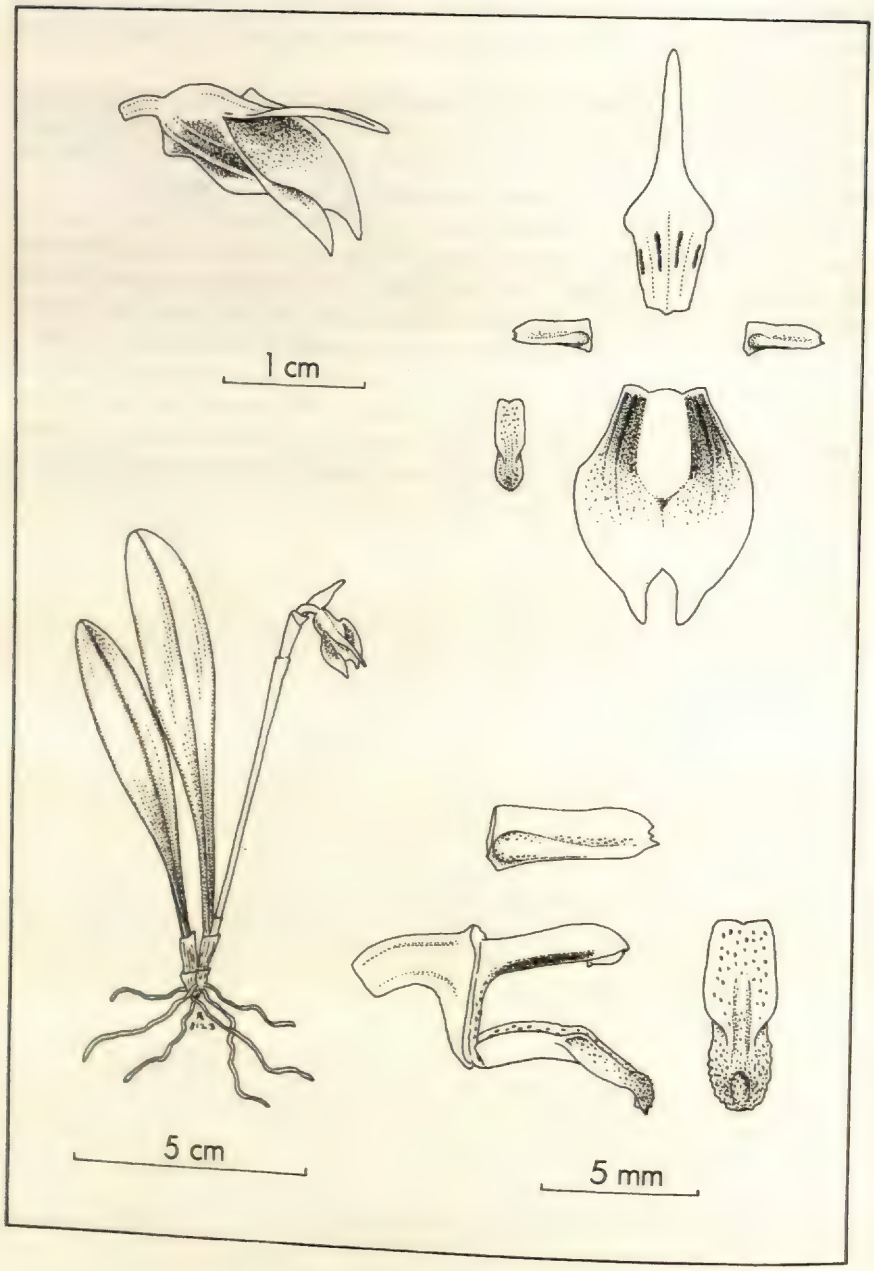



Plate 26. Masdevallia cuprea

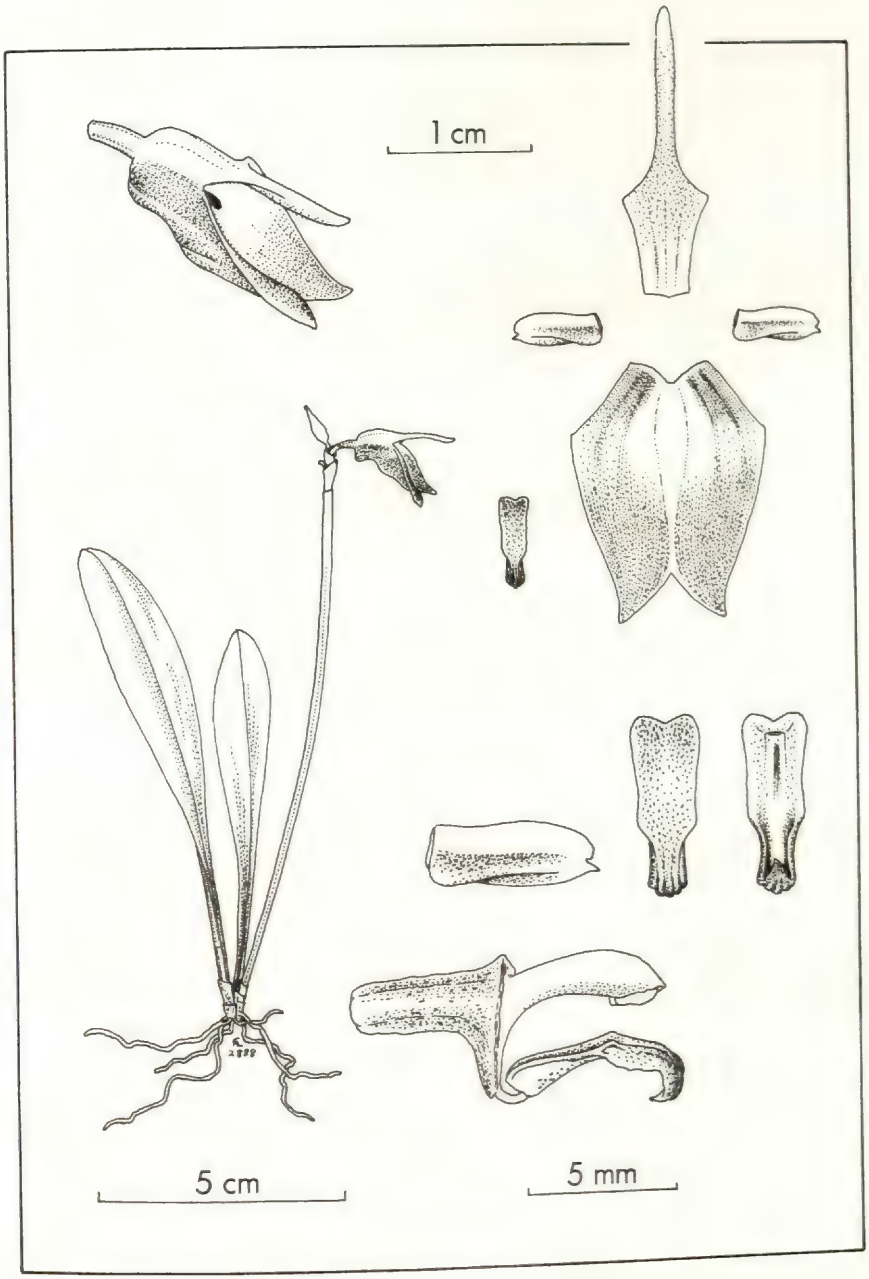



Plate 27. Masdevallia cuprea

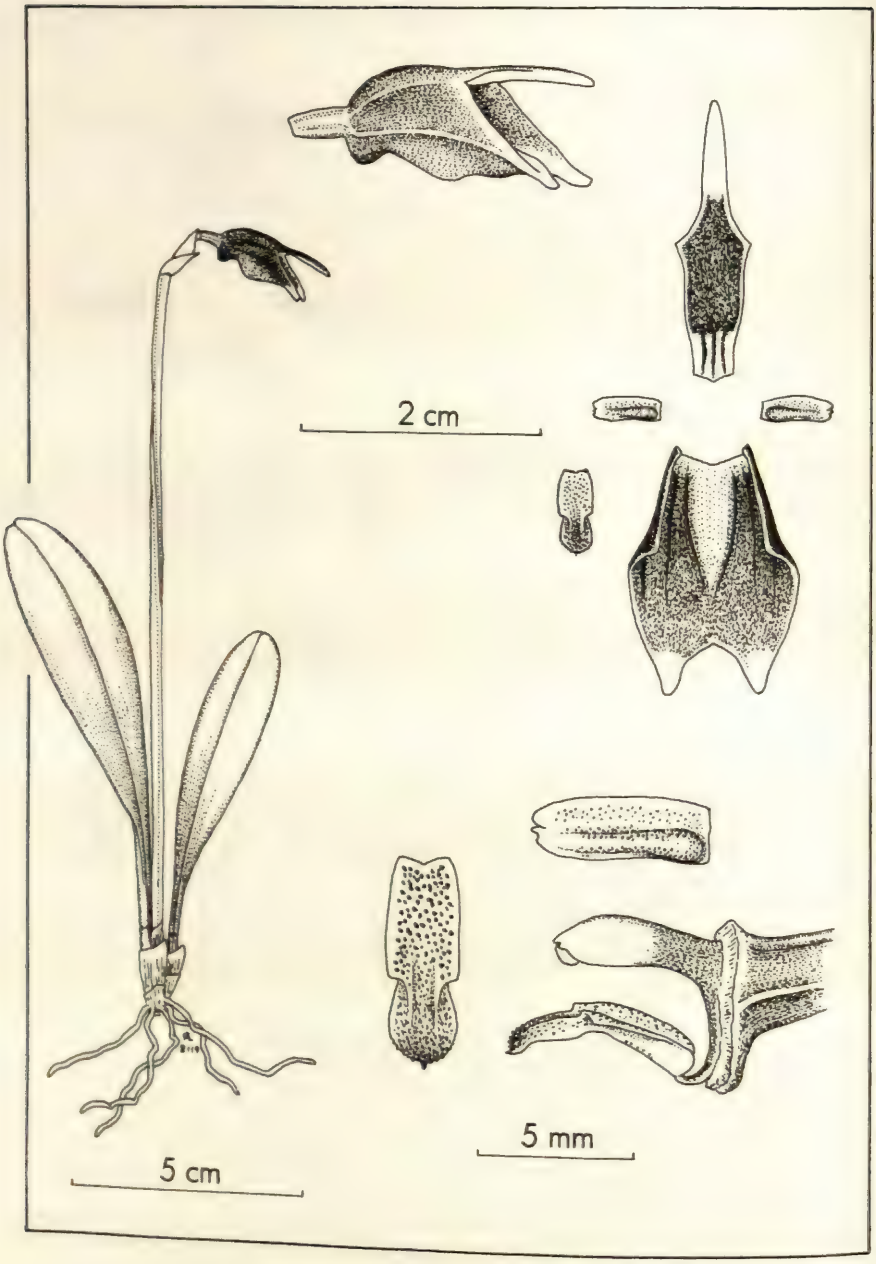



Plate 28. Masdevallia cuprea
(M. hepatica)

**Masdevallia deceptrix** Luer & Würstle, Thesaurus Masdevalliarum 10: 4, 1984.

Ety.: From the Latin *deceptrix*, "a deceiver," referring to the confusion of this species with *M. maculata*.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 6-13 cm long including the petiole 1-2 cm long, the blade elliptical to narrowly elliptical, subacute to obtuse, 1.4-2.8 cm wide, narrowly cuneate below into the indistinctly petiolate base. **Inflorescence** a congested, successively several-flowered raceme up to 4 cm long, borne by an erect, triquetrous peduncle 6-13 cm long, with a basal bract, from near the base of a ramicaul; floral bracts thin, imbricating, 10-18 mm long; pedicels 8-20 mm long; ovary 4-6 mm long; **sepals** brown to deep purple, minutely verrucose within, the blade of the dorsal sepal obovate, 16-22 mm long, 6-8 mm wide, connate to the lateral sepals for 13-20 mm to form a cylindrical tube, the subacute apex contracted into a slender, more or less erect tail 3-4.5 cm long, lateral sepals connate 22-35 mm to form an ovate synsepal 25-40 mm long, decurved beyond the sepaline tube, with an acute, bifid apex, the approximate tails slender, sometimes crossed, 12-27 mm long; **petals** tan to purple, oblong, 7-8.5 mm long, 2-2.5 mm wide, the apex obtuse, variably shallowly notched, the labellar half longitudinally callous; **lip** purple, or yellow to orange diffusely dotted with purple, oblong-subpandurate, 6-7.5 mm long, 2.5 mm wide, with smooth, marginal folds near the middle, the epichile obovate, obtuse, minutely denticulate and verrucose, the hypochile oblong, truncate, hinged below; **column** white, semiterete, 5-6 mm long, the foot 3 mm long with a short, incurved extension.

VENEZUELA: without locality, obtained by Berthold Würstle from Ron Hawley who had obtained the plant from G.C.K. Dunsterville, cultivated by B. Würstle at Spielberg, Germany, 6 Oct. 1986, *C. Luer 11610* (Holotype: MO). **Lara**: Cerro Guacamuco, north of Siquisique, alt. 1400 m, Oct. 1948, *J. Renz 4899* (BAS); epiphytic in rain forest, Cerro Negro, near Río Claro (Barquisimeto), alt. 1200 m, G.C.K. Dunsterville 780, cultivated at El Hatillo 23 July 1982, *C. Luer 8085* (SEL). **Zulia**: Cordillera de Perija, alt. 1200 m, G.C.K. Dunsterville 214, cultivated at El Hatillo 23 July 1982, *C. Luer 8083* (SEL).

Dunsterville's illustration 780 of this species in *Venezuelan Orchids Illustrated* was misidentified as *M. rechingeriana*, a synonym of *M. sceptrum*, an Andean species. *Masdevallia deceptrix* is restricted to the coastal mountain range of Venezuela. It is more similar to sympatric *M. maculata*, also being variable in size, in the relative lengths of the peduncle, and in the size and color of the flowers. The peduncles are longer or shorter than the leaves. The color of the sepals varies from brown to deep purple. The sepaline tube is relatively long and cylindrical, the feature that most readily distinguishes this species from *M. maculata*. The blade of the synsepal is recurved beyond the junction with the dorsal sepal. Also as in *M. maculata* the lateral sepals are connate to above the middle with the apices and tails in apposition and shorter than the blade. The epichile of the lip is obtuse and minutely verrucose.

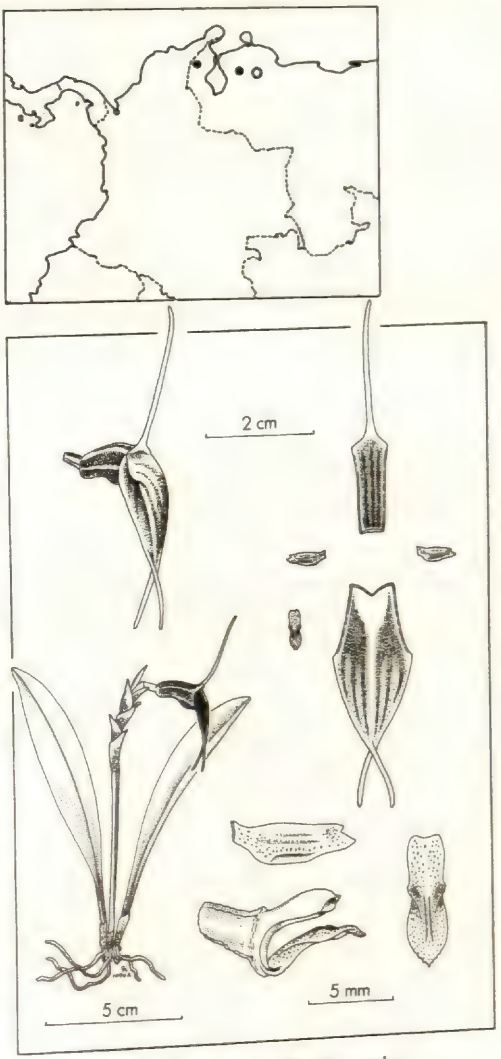



Plate 29. Masdevallia deceptrix

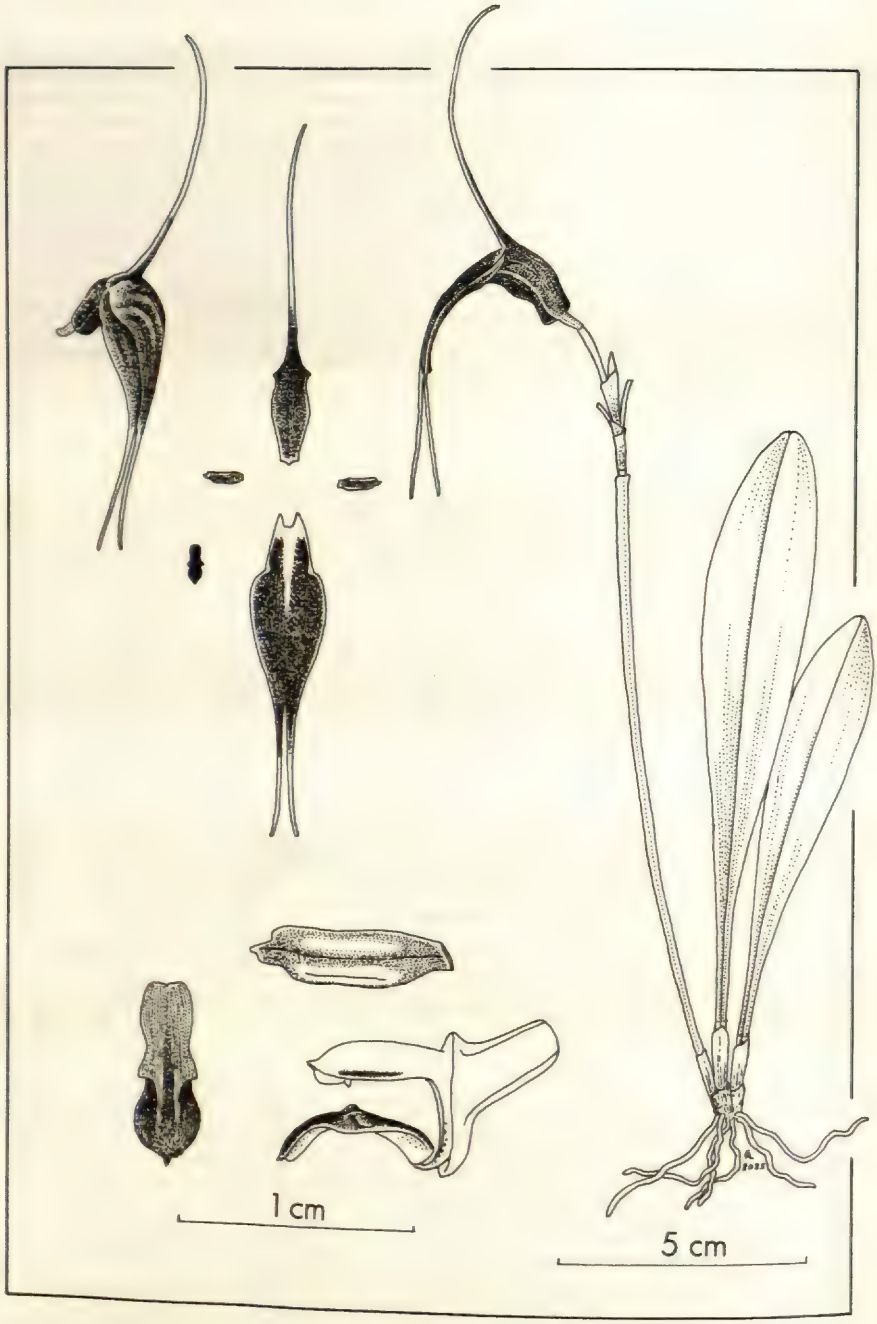


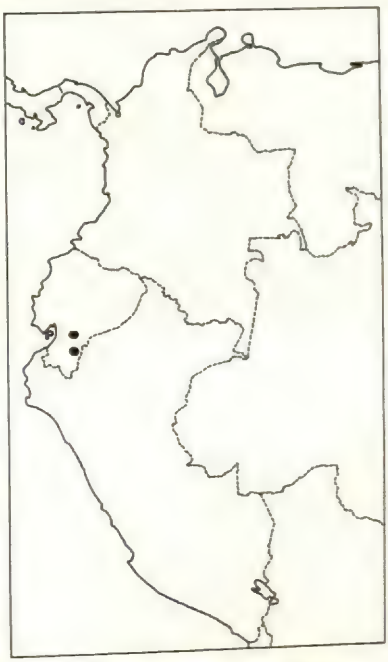

Plate 30. Masdevallia deceptrix

**Masdevallia descendens** Luer & Andreetta, Lindleyana 3: 195, 1988.

Ety.: From the Latin *descendens*, "descending," referring to the peduncle.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 7-11 cm long including the petiole 1.5-2 cm long, 1.7-2.1 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested raceme about 1 cm long, the peduncle stout, horizontal to pendent, triquetrous, 2.5-4 cm long, with a bract at the base, from low on the ramicaul; floral bracts 10-13 mm long, imbricating; pedicels 10-12 mm long; ovary 5-7 mm long; **sepals** rigid, the dorsal sepal yellow, ovate, 34-42 mm long, 9 mm wide, connate to the lateral sepals for 11 mm to form a conical, sepaline tube, the acute apex contracted into a broad, orange tail 2-3 cm long, the lateral sepals dark purple, ovate, acute, 34-43 mm long, connate to each other for 25 mm to form a shallowly gibbous lamina 25 mm wide expanded, minutely verrucose, the apices narrowed into orange, triangular tails; **petals** ivory, cartilaginous, oblong, obtuse, obliquely apiculate, 10.5 mm long, 3 mm wide, with both sides longitudinally callous; **lip** ivory, spotted with deep purple, thick, subpandurate, 11.5 mm long, 5 mm wide, with marginal folds above the middle, the epichile ovate, rounded, verrucose, the hypochile oblong, subcordate at the base, hinged beneath; **column** white, semiterete, 8 mm long, the foot thick, 5 mm long, with a very short, incurved extension.

ECUADOR: **Morona-Santiago**: Valle del Calagrás, alt. 1500 m, collected by Padre Andreetta and Mario Portilla, cultivated by Padre Angel Andreetta at Paute, 16 May 1988, *C. Luer 13369* (MO). **Zamora-Chinchipe**: Cordillera del Condor, epiphytic in forest east of Los Encuentros, alt. 1300 m, 19 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13477* (MO). West of Río Yacuambe, road to Veinteocho de Mayo, near El Progresso, alt. 1450 m, 3 Dec. 1988, *M. Whitten, N. Williams & M. Jiménez 88020* (QCNE).



This uncommon species is apparently endemic in southern Ecuador. The habit with thickly coriaceous leaves is similar to that of many other species of this section. Most distinctive is the short, horizontal peduncle that bears the rigidly fleshy flower half burred in the surrounding mossy substrate. The lateral sepals are deeply connate into a synsepal that expands beyond the tube and terminates in short, thick, acuminate tails. The flower is not unlike that of *M. vargasii* or *M. kuhniorum*. The petals are oblong and callous on the labellar half. The lip is similarly large with broad folds above the middle.

A similar species with a horizontal or descending peduncle is *M. lintricula*, which is distinguished by a cymbiform synsepal with much shorter tails.

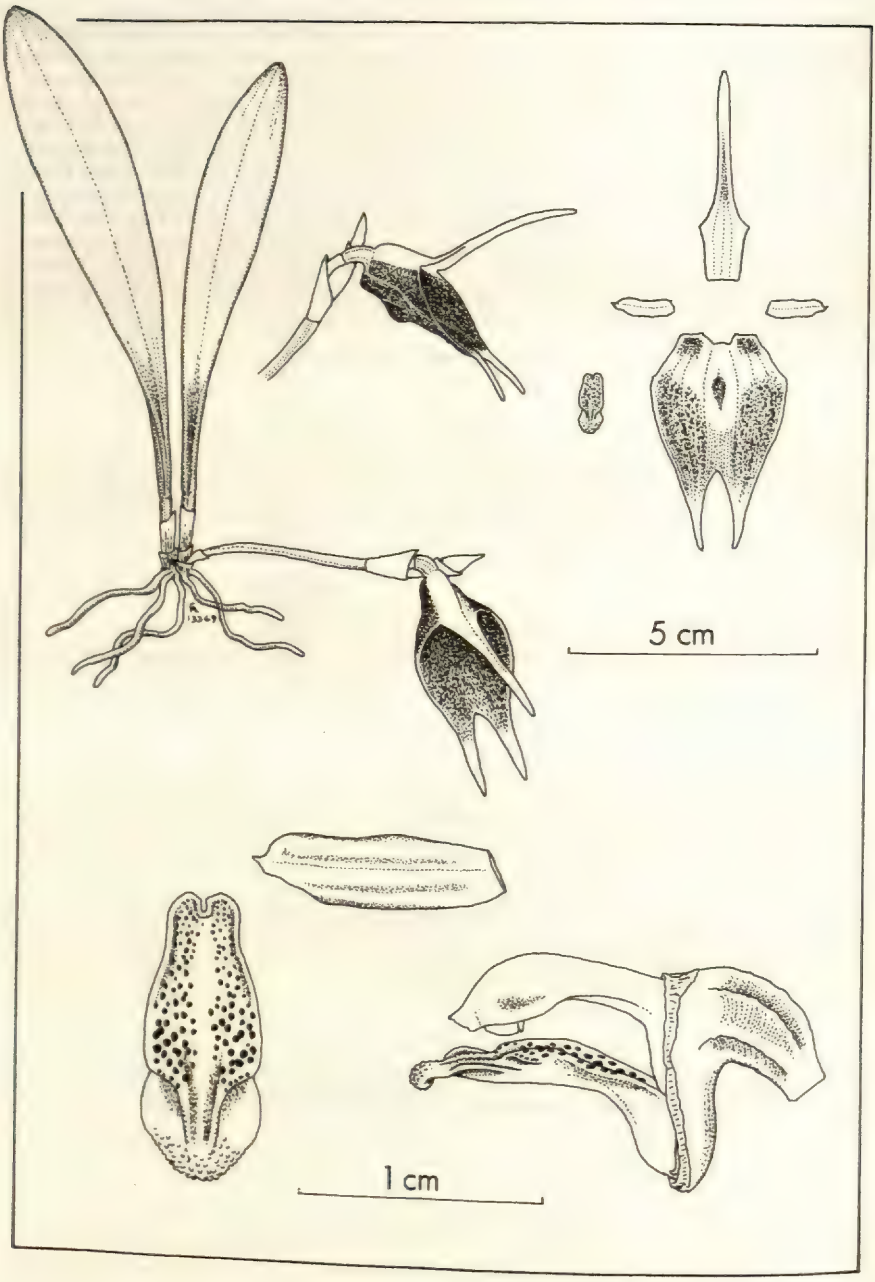


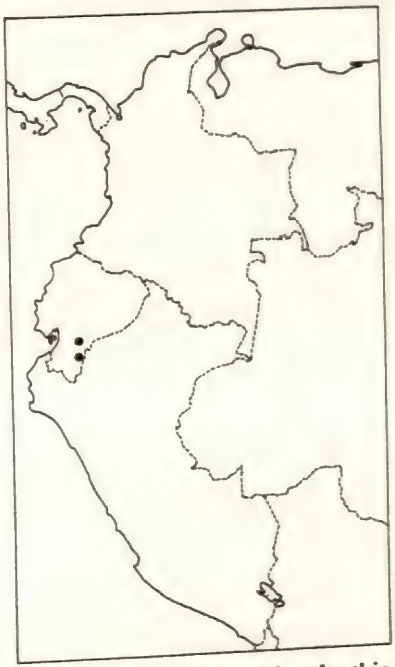

Plate 31. Masdevallia descendens

**Masdevallia don-quijote** Luer & Andreetta, Phytologia 59: 61, 1985.

Ety.: Named for the fancied appearance of the flower with its forward-pointing dorsal sepal resembling a lance and the lateral sepals resembling the bowed legs of a horseman.

**Plant** medium to large in size, epiphytic, caespitose; roots coarse. Ramicaul erect, stout, 1-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** thickly coriaceous, erect, 7-15 cm long including the petiole 2-2.5 cm long, 1.8-2.7 cm wide, the blade elliptical, acute, gradually narrowed below into the stout petiole. **Inflorescence** a congested raceme of successive flowers, 1 cm long or longer, borne by a slender, erect, triquetrous peduncle 20-31 cm long, from the base of a ramicaul; floral bracts imbricating, 5-10 mm long; pedicel 10 mm long; ovary 5-7 mm long; **dorsal sepal** yellow, narrowly triangular, attenuate into a slender tail, 55-80 mm long, 7 mm wide at the base, connate to the lateral sepals for 2 mm to form a shallow, gaping cup; **lateral sepals** dark purple, markedly verrucose, narrowly oblong-elliptical with recurved sides, connate 20-28 mm, the acute apices attenuate into slender, yellow tails, 50-78 mm long, 10 mm wide unexpanded; **petals** yellow-white, edged in purple, oblong, 9 mm long, 2.5 mm wide, the apex lightly bilobed, the labellar half with a longitudinal callus ending in a rounded callus above the base; **lip** yellow, suffused with purple, obovate, 6 mm long, 4 mm wide, the apex obtuse, verrucose, revolute, the subcordate base hinged to the column-foot; **column** white, semiterete, 9 mm long, the foot short, thick, with an abbreviated incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest near Bomboiza, alt. 1500 m, Nov. 1982, *A. Andreetta & M. Portilla 1770* (Holotype: MO), C. Luer illustr. 9533; cultivated at Colomborquídeas in Colombia, 6 Apr. 1988, *C. Luer 13052* (MO). **Zamora-Chinchipe**: Cordillera del Condor, south of Napintza, alt. 1000 m, June 1991, *A. Hirtz 5550* (MO).



This remarkable species is found infrequently in southern Ecuador, where it was first collected by Father Andreetta in 1982. Although superficially similar to *M. impostor*, *M. don-quijote* is easily identified by the long, lance-like, forwardly directed dorsal sepal, and the coarsely verrucose synsepal with revolute margins produced into a pair of long, diverging tails.

The petals are oblong and callous on the labellar half. The usual marginal folds of the lip seen in section *Alaticaules* are modified into marginal callous thickenings, approaching the lip of section *Coriaceae* of subgenus *Masdevallia*. Were it not for the successively flowered raceme borne by a triquetrous peduncle, this species could be confused with that section.

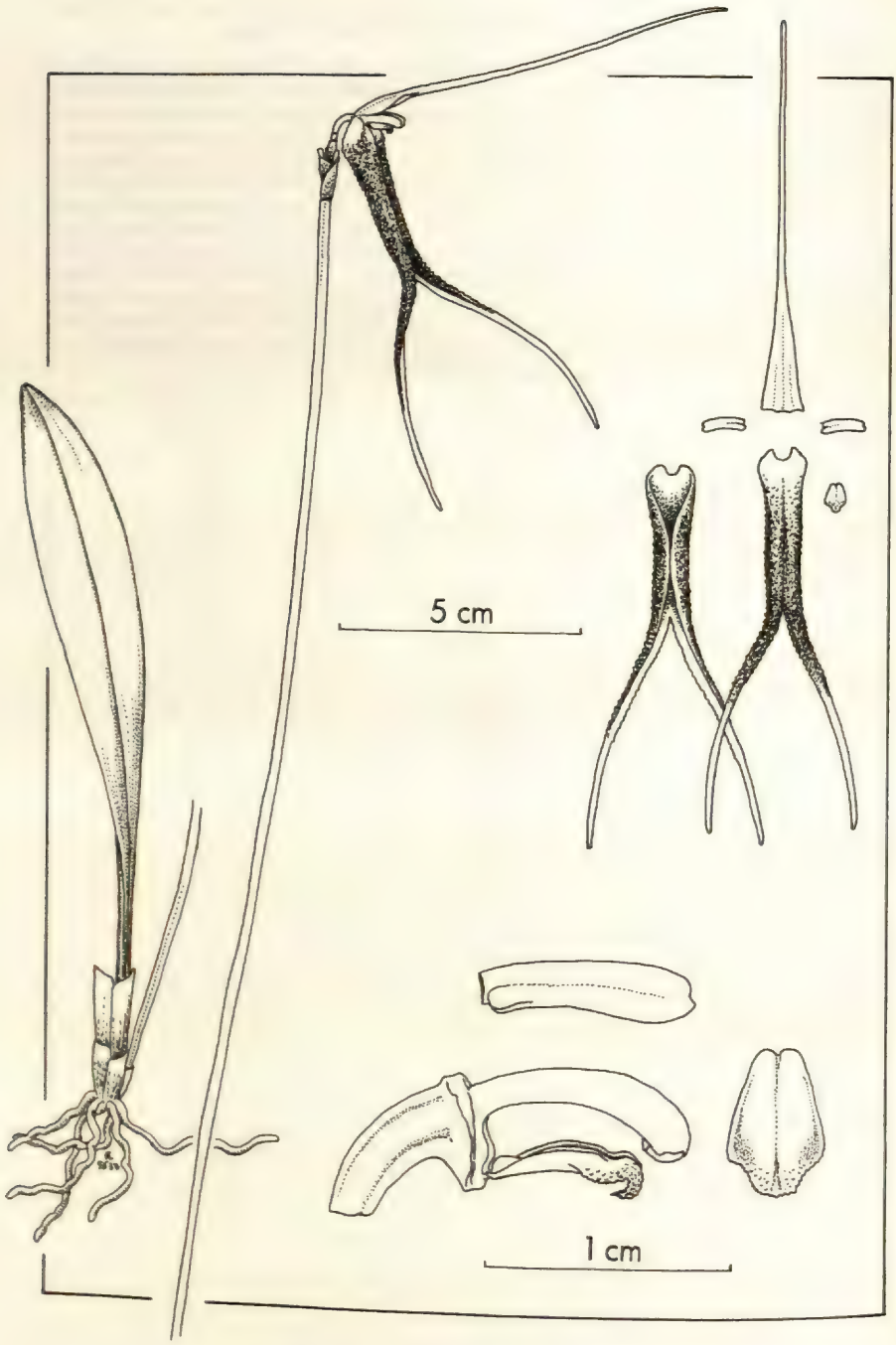


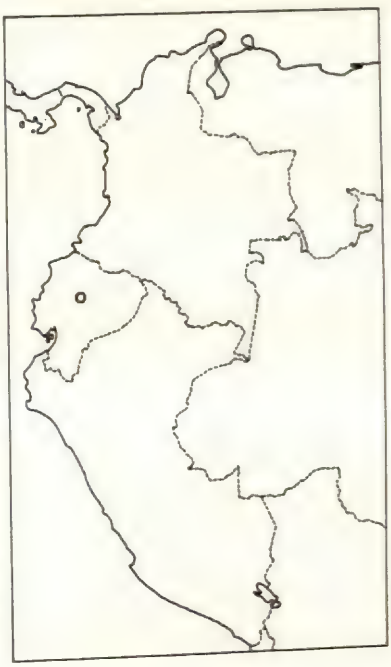

Plate 32. Masdevallia don-quijote

**Masdevallia dorisiae** Luer, Monogr. Syst. Bot. 76: 149, 1999.

Ety.: Named in honor of Doris Dukes of Dover, FL, who submitted the plant for identification.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 10-14 cm long including a petiole 2-3 cm long, the blade elliptical, subacute, 1.5-1.8 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a subdense, successively few-flowered raceme borne by an erect, slender, triquetrous peduncle 14 cm long, from low on the ramicaul; floral bract 15 mm long; pedicel 15 mm long; ovary 5-6 mm long; **sepals** yellow, suffused with rose medially, glabrous externally, cellular within, the dorsal sepal elliptical, acute, long-attenuate, decurved, 52 mm long, 10 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical tube, the lateral sepals connate 27 mm into an ovate, bifid lamina, decurved at the opening of the tube, 35 mm long, 15 mm wide, with acute apices attenuate into slender, descending, white tails 15 mm long; **petals** white, oblong, 7 mm long, 2.5 mm wide, the apex obliquely subtruncate, obscurely lobed, with a longitudinal callus on the lower half ending in an obtuse angle above the base; **lip** white below the middle, black above the middle, oblong, with oblique marginal folds at the middle, 6 mm long, 2.5 mm wide, the apex minutely verrucose, apiculate and denticulate, convex beneath, the base thickened, subtruncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with an extension.

ECUADOR: Without collection data, purchased by Doris Dukes from a vendor at the orchid show in Quito, Ecuador, Feb. 1994, flowered in cultivation in Dover, FL, Sept. 1995, *D. Dukes s.n.* (Holotype: MO), C. Luer illustr. 17750.



This attractive species was purchased by Doris Dukes at a Quito orchid show in 1994, and cultivated in Florida. Unfortunately, collection data are unknown.

Vegetatively, *M. dorisiae* is proportionately small for the size of the flower, with the peduncle about as long as the leaf. The sepals are yellow, suffused medially with rose, and connate into a cylindrical tube, beyond which the synsepal decurves abruptly. The acute apices are attenuated into relatively short tails. The long-attenuate dorsal sepal decurves. The petals are oblong, and the oblong lip is white below the middle and black above the middle with an obtuse, minutely verrucose apex.

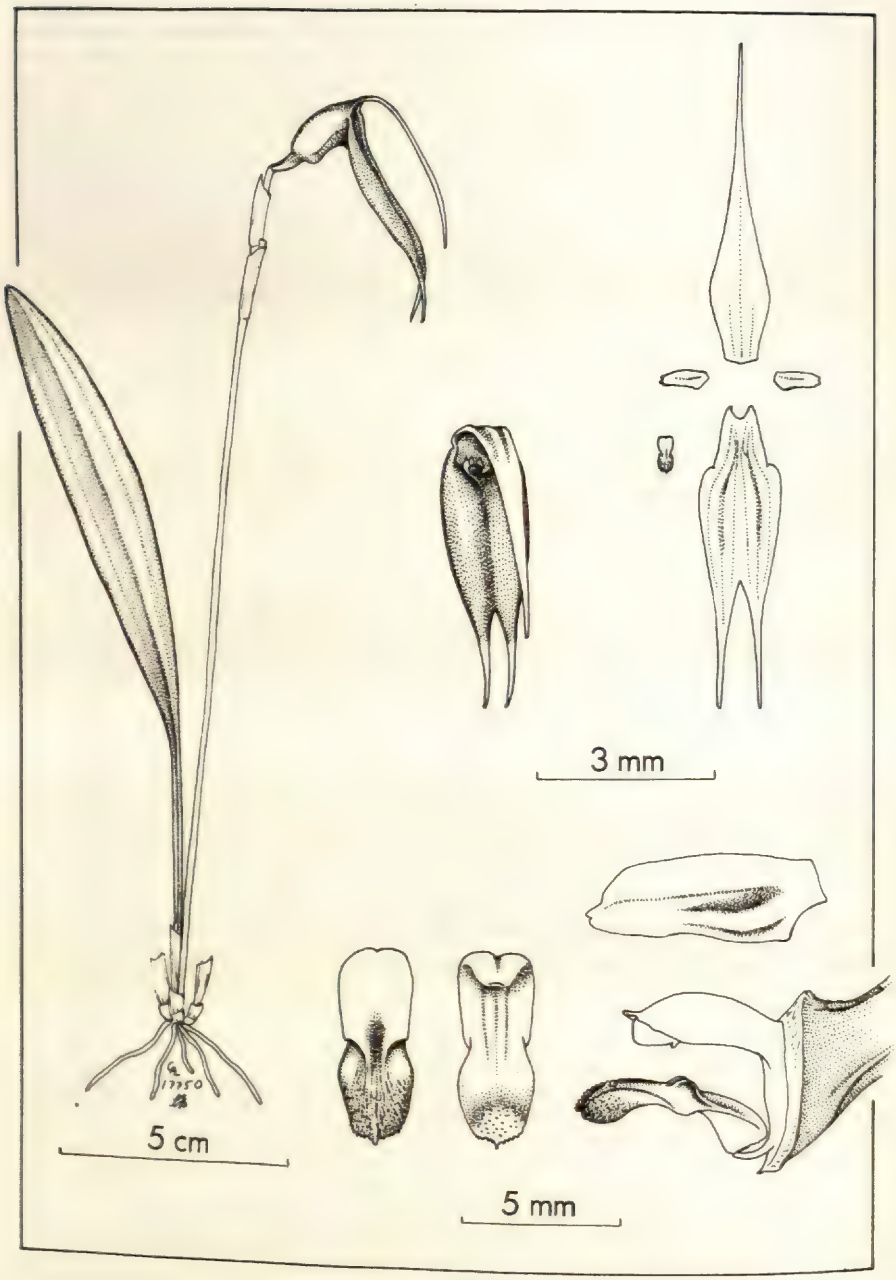


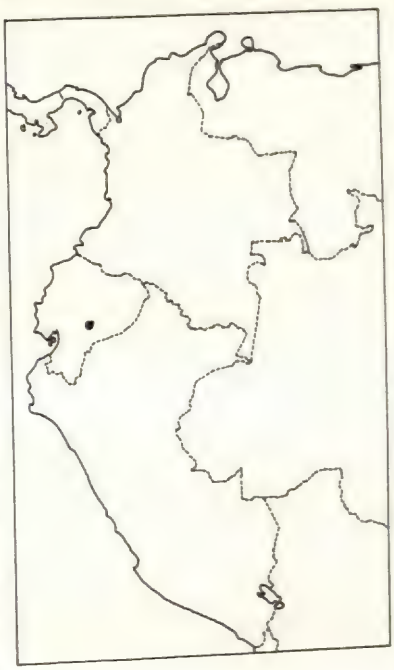

Plate 33. Masdevallia dorisiae

**Masdevallia draconis** Luer & Andreetta, Lindleyana 3: 21, 1988.

Ety.: From the Latin *draconis*, "of a dragon," referring to the dragon-like appearance of the lip.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 7-11 cm long including the petiole 1-1.5 cm long, 2-2.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested raceme, 3 cm long or longer, the peduncle stout, erect to suberect, triquetrous, 20-23 cm long, with a bract at the base, from low on the ramicaul; floral bracts 12-15 mm long, imbricating; pedicels 15-20 mm long; ovary 5 mm long; **sepals** rigid, light rose-brown, the dorsal sepal ovate, 27 mm long, 9 mm wide, connate to the lateral sepals for 2 mm to form a short, gaping, sepaline cup, the subacute apex narrowly obtuse, yellow-green, subverrucose, the lateral sepals oblong-ovate, obtuse, oblique, 26 mm long, connate to each other for 20 mm, the sides revolute, 10 mm wide unexpanded, subverrucose; **petals** yellow, cartilaginous, oblong, obtuse, subtridentate, 5.5 mm long, 2.5 mm wide, with a low, longitudinal callus on the labellar half; **lip** purple, densely spotted with dark purple, oblong, 5.5 mm long, 2 mm wide, with thick, verrucose, marginal folds near the middle, the epichile oblong, rounded, revolute, markedly verrucose, with a verrucose callus beneath, the hypochile oblong, rounded, hinged beneath; **column** white with the edge purple, semiterete, 5 mm long, the foot thick, 3 mm long, with an incurved extension.

ECUADOR: **Morona-Santiago:** Cordillera del Cutucú, alt. 1500 m, collected by Padre Andreetta and Mario Portilla, cultivated by Padre Angel Andreetta at Paute, flowered 8 Feb. 1987, *C. Luer 12737* (Holotype: MO); same collection, cultivated at Colomborquídeas, 6 July 1996, *C. Luer 17969* (MO).



This species, rare in the Oriente of Ecuador, was discovered by Father Angel Andreetta. Its closest relatives seem to be the Colombian *M. melanoxantha* and *M. scobina*. Vegetatively not remarkably different from other medium-sized species of the section, the stout peduncle far surpasses the leaf, and bears the flower successively. The sepals are connate into a short cup. The thickened, narrowed apex of the dorsal sepal is lightly verrucose. The lateral sepals are connate and tailless, forming a lightly verrucose synsepal with revolute sides. The dark purple lip is divided near the middle by verrucose folds into a markedly verrucose epichile with a verrucose callus beneath, and a rounded hypochile.

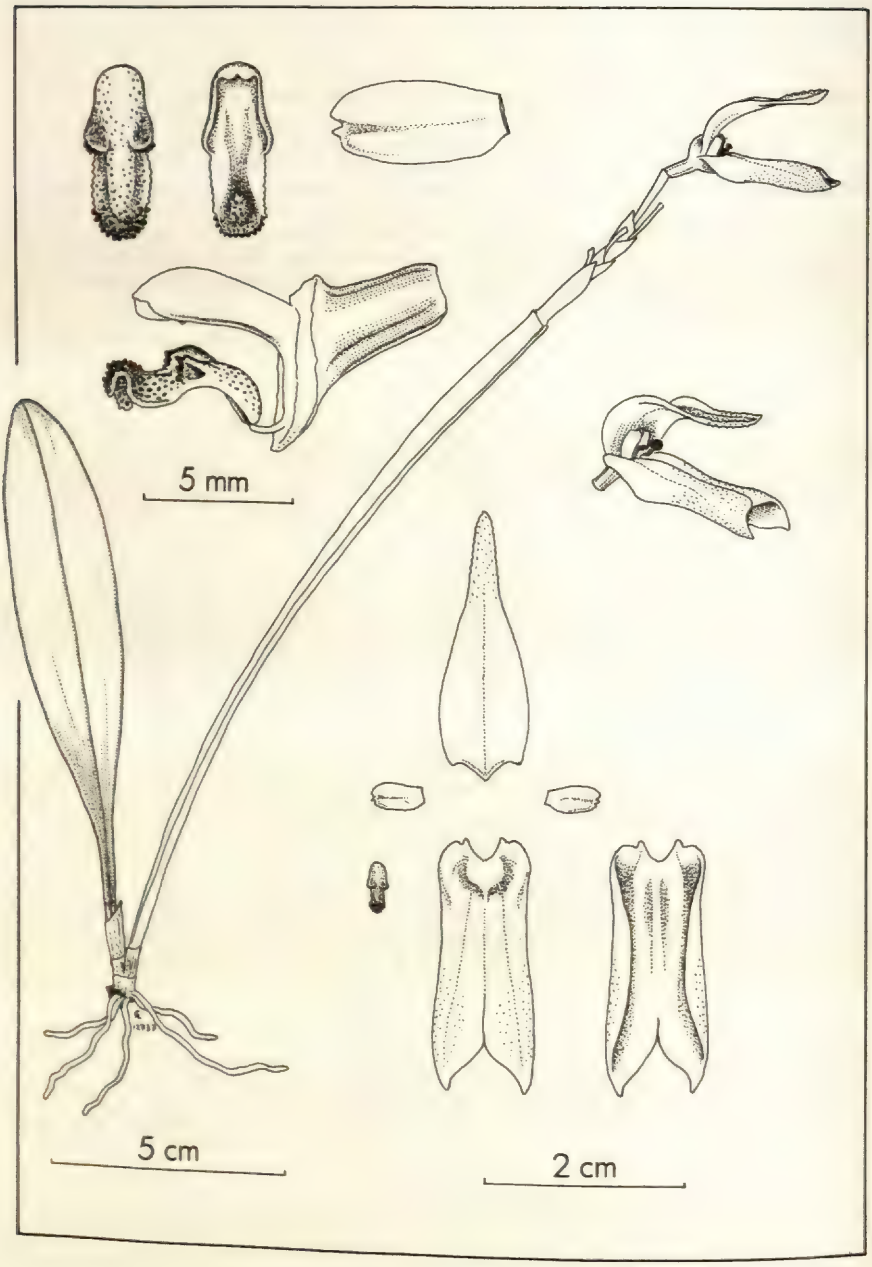


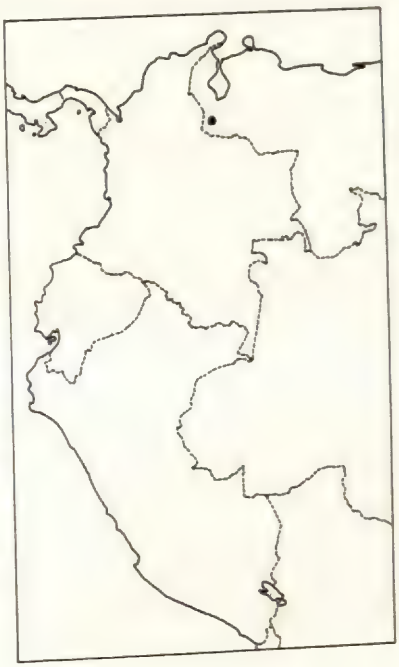

Plate 34. Masdevallia draconis

**Masdevallia dunstervillei** Luer, Selbyana 7: 106, 1982.

Ety.: Named in honor of the late G.C.K. Dunsterville, author and illustrator of *Venezuelan Orchids Illustrated*, who discovered and illustrated this species.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, up to 15 cm long including the petiole 3-4 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, up to 2.8 cm wide, gradually narrowed below into the channeled petiole. **Inflorescence** a congested, simultaneously 2-flowered raceme, borne by a slender, erect to suberect, triquetrous peduncle up to 12 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 7 mm long; pedicel 10 mm long; ovary 3 mm long; **dorsal sepal** yellow, obovate, 10 mm long, 7 mm wide, connate to the lateral sepals for 3 mm to form a shallow, gaping cup, the free portion triangular, obtuse, contracted into a slender, acutely reflexed tail 4 cm long; **lateral sepals** dark purple with narrow, yellow margins, verrucose within, connate 16 mm into a broad, ovate lamina with a shallow mentum, 16 mm long, 16 mm wide, the apices approximate, subacute, contracted into slender, yellow tails 3.5 cm long; **petals** white, oblong, 5.5 mm long, 1.8 mm wide, the apex obtuse, obscurely bilobed, the labellar margin with a low, longitudinal callus ending in a low, rounded swelling above the base; **lip** dark purple, oblong-ovate, with broad, obtuse marginal folds near the middle, 5 mm long, 2 mm wide, the epichile convex, rounded with the apiculate tip revolute, the hypochile oblong, the base subtruncate, hinged below; **column** yellow, semiterete, 4 mm long, the foot 2 mm long with an incurved extension.

VENEZUELA: **Táchira**: epiphytic in cloud forest between Quenequea and Zumbador, alt. 2000 m, 1972, *G.C.K. Dunsterville, N. Dunsterville & R. Mejía 1210* (Holotype: MO).



This species was collected and illustrated by Dunsterville in 1972. Apparently it has not been seen again. The description is based on Dunsterville's notes and a flower preserved in liquid.

Found at a higher altitude, *M. dunstervillei* is most similar to *M. sanctae-fidei*. It differs from the latter by the longer peduncle and longer tails of the two flowers that are produced simultaneously as in *M. bicolor*. The lateral sepals are connate into a broadly ovate lamina with the tails somewhat longer and nearly approximate. Most unusual is the lip with the smooth, convex epichile, rounded on the end with an acutely revolute apiculum.

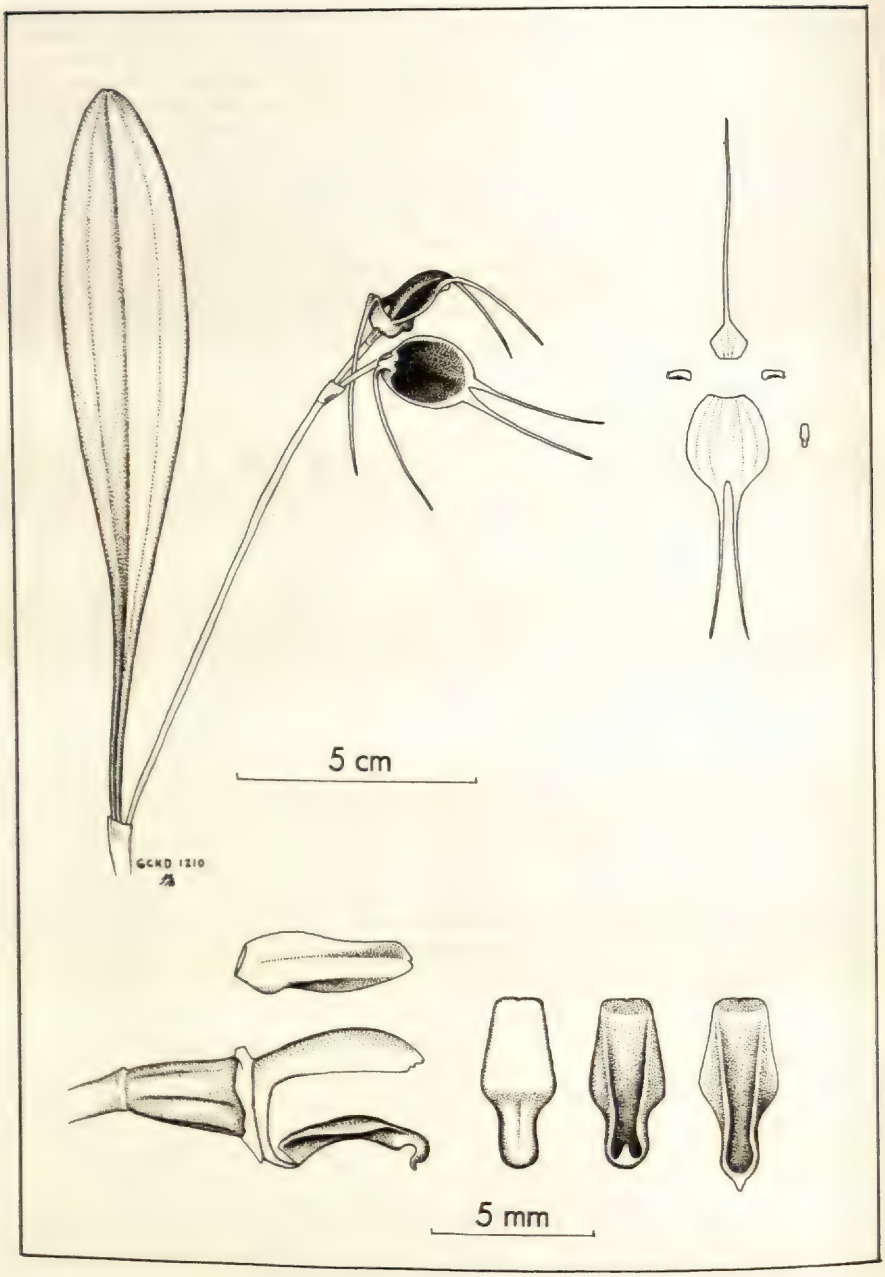


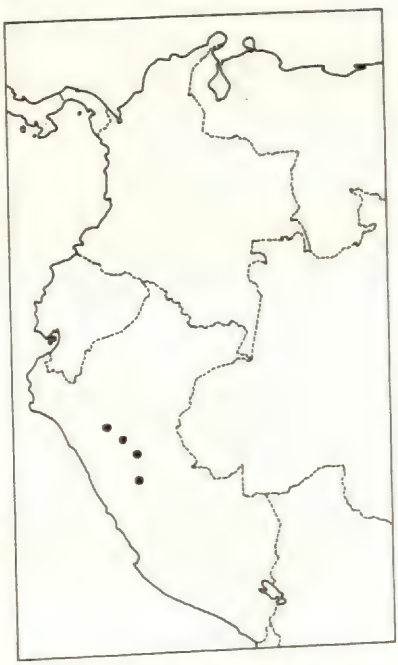

Plate 35. Masdevallia dunstervillei

**Masdevallia echo** Luer, Phytologia 39: 198, 1978.

Ety.: Named for the Greek mythological nymph Echo, known by her repetitious voice, hence recalling the confusing similarity of *M. infracta*.

**Plant** medium to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 10-20 cm long including the ill-defined petiole 1-4 cm long, the blade narrowly elliptical-oblong, subacute to obtuse, 1.8-2.8 cm wide, gradually narrowed below into the channeled petiole. **Inflorescence** a congested, successively several-flowered raceme borne by an erect, triquetrous peduncle 15-30 cm long, with a bract at the base, from near the base of the ramicaul; floral bracts papery, imbricating, 1.5-1.5 cm long; pedicel 2.5-5 cm long, ovary 6-8 mm long; **sepals** olive green, suffused with red-purple especially within where the surface is minutely pubescent above the middle, the dorsal sepal obovate-cuneate, 22 mm long, 11-14 mm wide, connate to the lateral sepals 16-20 mm to form a suborbicular sepaline tube, the free portion transversely triangular, the broadly obtuse apex abruptly contracted into an erect, slender, yellow-green tail 4-5 cm long, the lateral sepals ovate, oblique, connate 10-12 mm into a transversely ovate lamina 15-17 mm long, 30-38 mm wide expanded, forming a deep, secondary mentum, the obtuse apices approximate, contracted into contiguous, slender tails 2.5-3.5 cm long; **petals** white, flecked with purple, oblong, 6-7 mm long, 2 mm wide, both halves longitudinally callous, the truncate apex with a prominent, acute, apiculum; **lip** white to yellow, spotted with purple, oblong-subpandurate, 7.5-8 mm long, 2-2.75 mm wide, with acute marginal folds near the middle, the epichile deflexed, obovate, obtuse, denticulate, lightly verrucose, the hypochile oblong with the base truncate, hinged below; **column** greenish white, semiterete, 5-6 mm long, the foot stout, 3 mm long with a short incurved extension.

PERU: **Junín**: collected near Chanchamayo, obtained by J & L Orchids, Easton CT, USA, from R. Stümpfle, cultivated 8 Nov. 1977, *C. Luer 2127* (Holotype: SEL); same source, cultivated by T. Vigliotti in Ft. Lauderdale, FL, Aug. 1976, *C. Luer 1638* (SEL); Tarma, Agua Dulce, alt. 2000 m, 6 Apr. 1948, *F. Woytkowski 37010* (AMES); above San Ramón, 19 June 1985, *D. Bennett & A. Bennett 3450* (MO). **Cajamarca**: hills above Celendin, alt. 2700 m, 19 May 1964, *P.C. Hutchison & J.K. Wright 5182A* (AMES, UC). **Huánuco**: between Huánuco and Pampayacu, 2 Feb. 1927, *Ryozo Kanehira 112* (AMES).



Apparently endemic in central Peru, this species probably had been identified as the Brazilian *M. infracta* to account for the report of the latter species in Peru. Vegetatively, *M. echo* is large for the subsection, and the long peduncle equals or surpasses the leaves. The flowers are borne successively in a congested, long-pedicellate raceme. The sepals are deeply connate into a suborbicular or bell-shaped cup with the long tail of the dorsal sepal erect and the two tails of the lateral sepals closely parallel if not in apposition. The petals are oblong and apiculate. The lip is oblong and arcuate above the marginal folds with the epichile denticulate.

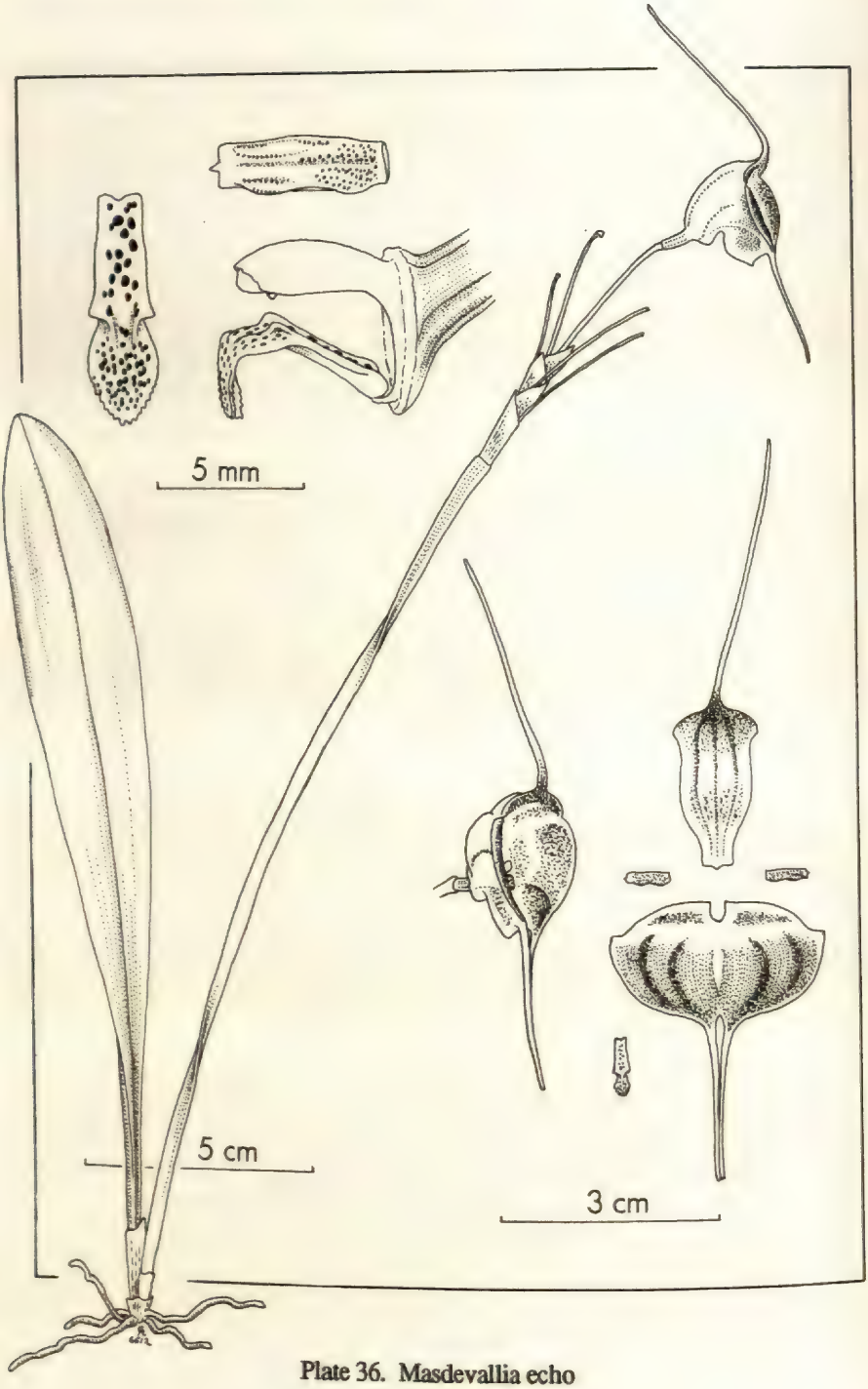



Plate 36. Masdevallia echo

**Masdevallia empusa** Luer, Phytologia 39: 200, 1978.

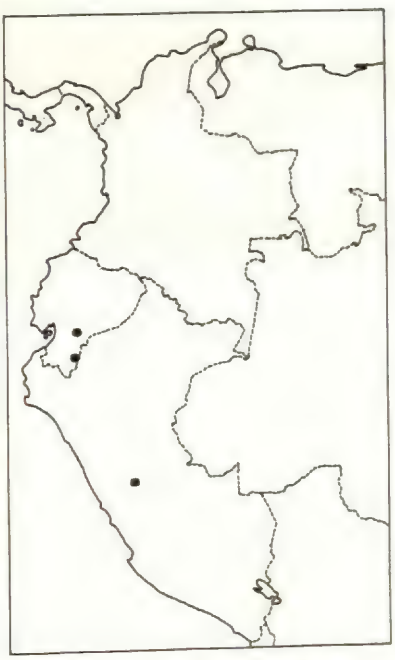
Ety: From the Latin *empusa*, "a hobgoblin," in allusion to the appearance of the flower.

Syn.: *Masdevallia jimenezii* Königer, Arcula 5: 122, 1996.

Ety.: Named for Marco Jiménez, a plant collector in Zamora, Ecuador.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-11 cm long including the narrow, subpetiolate base, the blade narrowly elliptical, subacute, 1.4-1.8 cm wide, gradually narrowed below into the base. **Inflorescence** a congested, successively few-flowered raceme, occasionally 2 flowers open simultaneously, borne by an erect, triquetrous peduncle 18-21 cm long, with a basal bract, from near the base of a ramicaul; floral bracts thin, imbricating, 10-18 mm long, enclosing the pedicels ca. 10 mm long; ovary 5 mm long; **sepals** red-purple-brown, the blade of the dorsal sepal obovate, ca. 12 mm long, 7 mm wide, connate to the lateral sepals for 8-9 mm to form a subconical cup, the acute apex acuminate into a decurved tail 3.5 cm long, the purple fading to yellow-green at the tip, the lateral sepals rugose within, connate 20 mm into a suborbicular, recurved lamina, 22 mm long, 19 mm wide expanded, the obtuse apices contracted into slender, yellow-green, approximate, decurved, tails nearly 2 cm long; **petals** white, suffused with rose, oblong, 7.5 mm long, 2 mm wide, the apex obtuse, apiculate, the labellar half with a longitudinal callus ending in a short, recurved process at the base; *lip* greenish white, dotted with red, oblong-subpandurate, 7 mm long, 2.5 mm wide, with oblique, marginal folds near the middle, the epichile ovate, subacute, verrucose, denticulate-lacerate, the hypochile oblong, truncate, hinged below; **column** white, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

PERU: **Huánuco**: epiphytic between Tingo Maria and Pucallpa, alt. ca. 700 m, collected by Janet Kuhn, Mar. 1975, cultivated at J & L Orchids, Easton, CT, 8 Nov. 1977, *C. Luer 2122* (Holotype: SEL).
ECUADOR: **Morona-Santiago**: epiphytic in cloud forest north of Gualaquiza, alt. 1700 m, Feb. 1986, collected by Dalström & Höijer, cultivated in Stockholm, Dec. 1987, *S. Dalström s.n.* (MO), C. Luer illustr. 14383. **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1500 m, cultivated by P. & A. Jesup in Bristol, CT, 1 June 1989, *C. Luer 14383* (MO); Jambuei, alt. 1500 m, collected by M. Jiménez, cultivated in Zamora, June 1991, *A. Hirtz 5517* (MO); Río Bombuscaro, alt. 1800-2000 m, collected by M. Jiménez, May 1990, flowered in Munich, Germany, 1995, *W. Königer WK-61* (holotype of *M. jimenezii*: M; clonotypes: K, QCA).



This grotesquely flowered species is found locally in southeastern Ecuador and central Peru, where it was first discovered by Janet Kuhn. The published description and illustration of *M. jimenezii* failed to include the distinct tooth-like process at the base of the petals.

Similar vegetatively to many other members of subsection, this species is characterized by a long, triquetrous peduncle that elevates the congested, successively flowered raceme well above the leaves, but sometimes two flowers open simultaneously. The flower is relatively large with a slender, decurved tail of the dorsal sepal, and shorter, recurved tails of the lateral sepals. The lateral sepals are prominently rugose and sulcate within, each sepal coursed by three thick, elevated, undulating veins. The petals are oblong with a narrow, descending, basal tooth. The epichile of the lip is finely fringed.

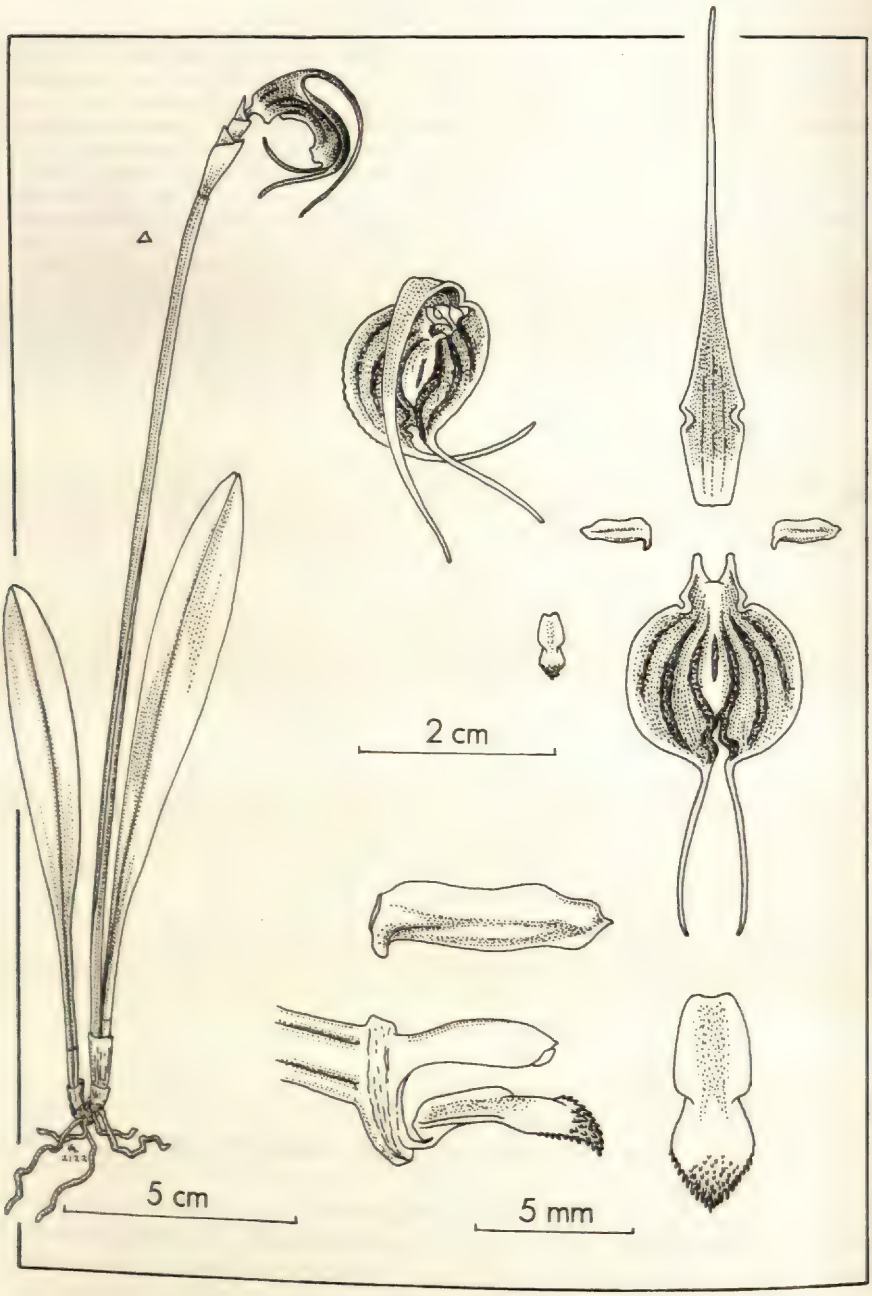


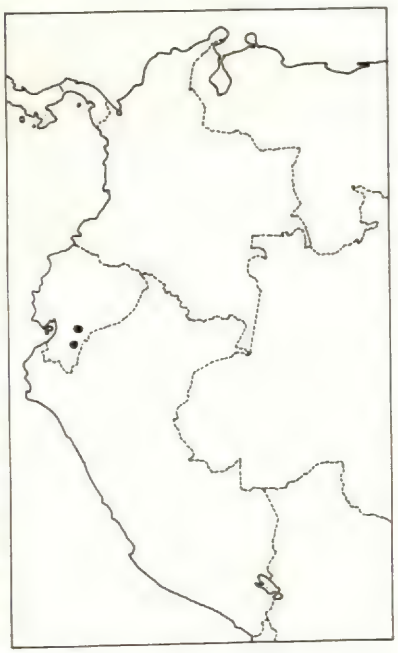

Plate 37. Masdevallia empusa

**Masdevallia excelsior** Luer & Andreetta, Selbyana 5: 393, 1981.

Ety.: From the Latin *excelsior*, "higher," in allusion to the peduncle, longer than that of many close relatives.

**Plant** medium to large, epiphytic, caespitose; roots coarse. Ramicauls stout,erect, 3-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 10-15 cm long including the 4-6 cm long petiole, the blade elliptical, subacute, 2-2.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a successively, distantly few-flowered raceme up to 6 cm long, 2-3 cm between flowers, borne by an erect, triquetrous peduncle 20-24 cm long, with a basal bract, from near the base of the ramicaul; floral bract tubular, 15-20 mm long; pedicel 28-30 mm long; ovary 4 mm long; **dorsal sepal** yellow-orange, subverrucose within, the blade ovate, 9 mm long, 7 mm wide, connate to the lateral sepals for 3 mm to form a short cup, the acute apex contracted into a slender, erect tail 4.5 cm long; **lateral sepals** dark purple, verrucose within, more or less elliptical, connate 16 mm into an expanded lamina 20 mm long, 18 mm wide, with a white, concave secondary mentum below the lip, the obtuse apices contracted into yellow-orange tails 3 cm long; **petals** white, oblong, 4.5 mm long, 1-1.5 mm wide, the apex obtuse, minutely notched, with a longitudinal lamella along the lower margin ending in a thick, broadly angled callus above the base; **lip** cream, intensely spotted with purple, subpandurate, 5 mm long, 1.75 mm wide, with broadly obtuse, marginal angles near the middle, narrowed above the middle, then dilated before the shortly acuminate, minutely verrucose apex, the truncate base hinged to the column-foot; **column** greenish white with a purple line along the margin, semiterete, 5 mm long, the short, thick foot with a short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest, Valle de Río Negro, afluente del Paute, Lomipuerco, alt. 2000 m, collected by A. Andreetta & M. Portilla, cultivated 5 May 1981, *C. Luer 6100* (Holotype: SEL); same area, alt. 2000 m, collected by C. Head, cultivated at J & L Orchids, Easton, CT, 27 Mar. 1982, *C. Luer 7414* (SEL); cultivated at Paute, 24 May 1988, *C. Luer 13658* (MO); terrestrial between Gualaceo and Limón, alt. 1900-2000 m, 22 Mar. 1974, *G. Harling & L. Andersson 12722* (AMES, GB); same area, alt. 2000 m, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13290* (MO). **Zamora-Chinchipe**: between Hatillo and 9 de Octubre, alt. 1900 m, 1985, cultivated in San Francisco, CA, July 1986, *W. Teague s.n.* (MO).



This infrequent species is apparently endemic in southeastern Ecuador. It is characterized by a broad, petiolate leaf and an exceedingly long peduncle. The raceme of a few, distant, successive flowers is reminiscent of *M. aenigma* from the Eastern Cordillera of Colombia, but the raceme of the latter is shorter, and more congested, often with two simultaneous flowers borne by a shorter peduncle. The sepaline tails of the latter are also much shorter.

The similar, yellow dorsal sepal and purple synsepal of *M. excelsior* are connate into a very short cup beyond which the synsepal expands. All three tails are long and slender. The petals are oblong with a callous swelling at the base of the lamella along the margin. The lip is subpandurate with broadly obtuse, marginal folds, and the tip of the epichile is acuminate-apiculate.

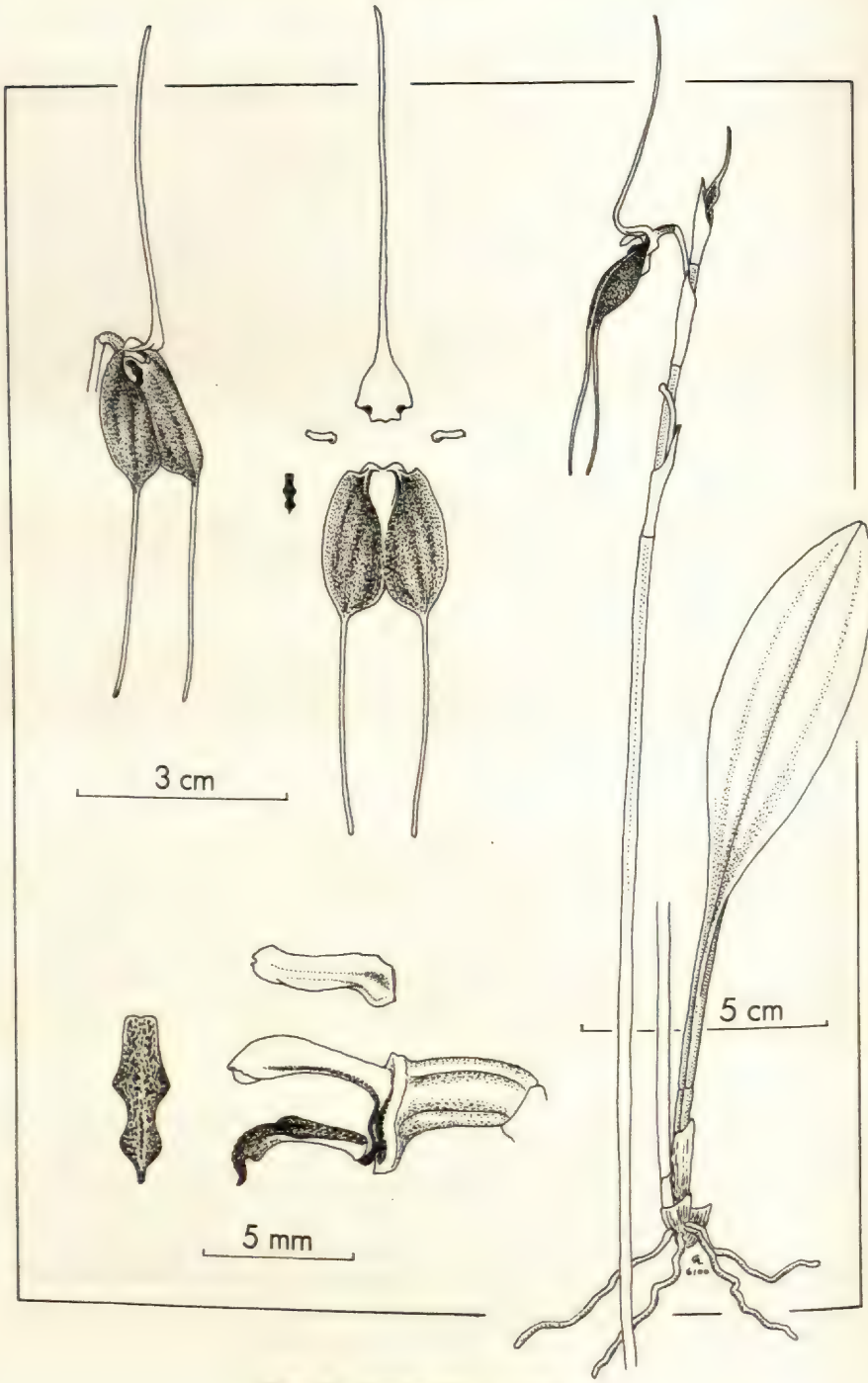



Plate 38. Masdevallia excelsior

**Masdevallia fosterae** Luer, Monogr. Syst. Bot. 76: 150, 1999.

Ety.: Named in honor of the late Elizabeth Foster of Bay Village, Ohio, who submitted the species for identification.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 6-11 cm long including the 1-2 cm long petiole, the blade elliptical, obtuse, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, soon followed by a second in a congested, few-flowered raceme, borne by an erect, triquetrous peduncle 9-12 cm long, with a basal bract, from near the base of a ramicaul; floral bract inflated, 12 mm long; pedicel 8-12 mm long; ovary 3 mm long, deeply fissured between carpels; **sepals** fleshy, glabrous, the blade of the dorsal sepal obovate, ca. 15 mm long, 6 mm wide, connate to the lateral sepals for 8 mm to form a campanulate tube, the apex acute, contracted into a slender, forwardly directed tail ca. 22 mm long, the lateral sepals oblong, oblique, the 15 mm long, 8 mm wide, connate for 6 mm, the apices rounded, abruptly contracted into slender tails 18 mm long; **petals** oblong, 7 mm long, 2 mm wide, the apex rounded, microscopically apiculate, the labellar half longitudinally callous; **lip** oblong, 6 mm long, 2 mm wide, the disc shallowly sulcate between oblique marginal folds above the middle, the epichile obtuse, subverrucose with crenulate margins, the hypochile oblong, subcordate at the base, hinged beneath; **column** semiterete, 5.5 mm long, the foot 3 mm long with a short, incurved extension.

Without collection data, cultivated in Bay Village, Ohio, submitted for identification, Nov. 1991, by the late *Mrs. Elizabeth Foster 7718* (Holotype: MO), C. Luer illustr. 15530.

Although no collection data are known, I do not believe that this taxon is hybrid in origin. Another collection should eventually appear. Among the species of this section, *M. fosterae* is distinguished by a ramicaul longer than the leaf, and a congested, successively flowered raceme. The sepals are slender-tailed; the dorsal sepal is acute and the laterals are rounded and abruptly caudate. The petals are oblong with a longitudinal callus above the margin. The lip is not particularly distinctive. The ovary is triangular in cross section with deep clefts between the three carpels.

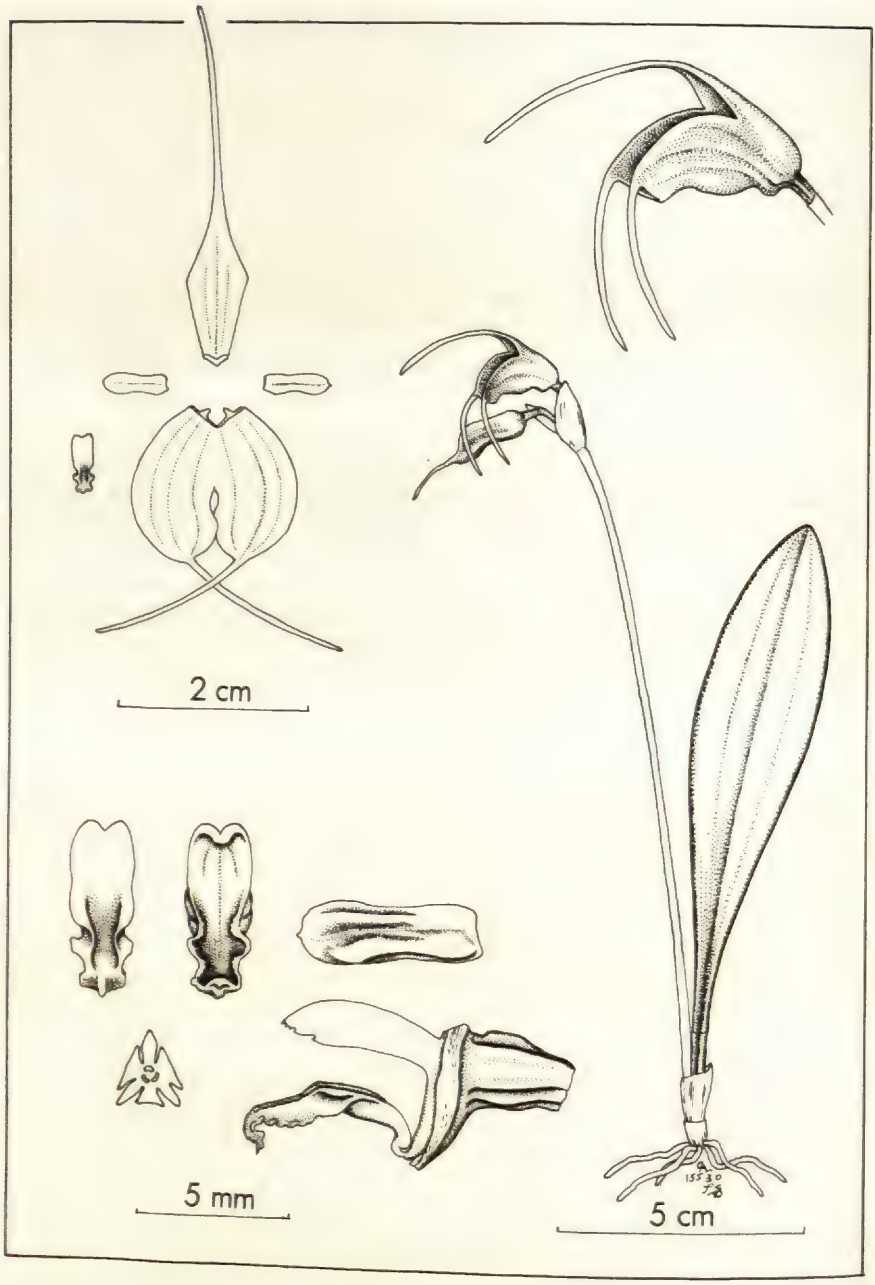


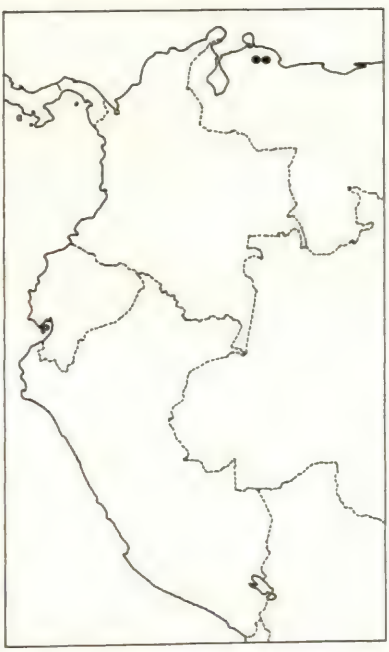

Plate 39. Masdevallia fosterae

**Masdevallia garciae** Luer, Selbyana 7: 109, 1982.

Ety.: Named in honor of Sr. Carlos García of Caracas, Venezuela, who collected this species.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-9 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, obtuse, 1.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower, occasionally followed by a second flower, borne by a slender, erect, triquetrous, partially triquetrous, or terete peduncle 4-5 cm long, with a basal bract, from near the base of a ramicaul; floral bract 7-8 mm long; pedicel 10 mm long, dotted with purple; ovary 4 mm long, subcarinate; **sepals** yellow-green, veined in purple-brown, the blade of the dorsal sepal oblong, 10-14 mm long, 5-6 mm wide, connate to the lateral sepals for 7-9 mm to form a cylindrical tube, the obtuse apex contracted into a thick, forwardly directed tail ca. 10 mm long, 1.5 mm wide, the lateral sepals ovate, oblique, the blades ca. 10 mm long, 7 mm wide, connate for 6 mm, the acute apices contracted into stout tails similar to that of the dorsal sepal; **petals** white with a purple midvein, oblong, 5 mm long, 1.6-2 mm wide, the apex truncate, lightly tridentate, the labellar margin longitudinally thickened with an obscure angle between the middle and lower thirds; **lip** dull yellow, dotted with red-brown, oblong, 6.5-7 mm long, 2.75-3 mm wide, the disc with a pair of shallow, marginal folds above the middle, the apex subacute, the base cordate-cleft, hinged beneath; **column** greenish white with purple margins, semiterete, 5.5 mm long, the foot 2 mm long with a short, incurved extension.

VENEZUELA: **Falcón**: epiphytic in rain forest, Sierra de San Luís near Curimagua, 1960, alt. ca. 4,000 ft., collected by C. García, cultivated by *G.C.K. Dunsterville 555* (Holotype: SEL); same area, cultivated at the Botanical Garden of the Vrije Universiteit, Amsterdam, 23 Oct. 1985, *C. Luer 11431* (MO); between Coro and Curimagua, alt. 1200 m, 21 Dec. 1951, *J. Renz 7665* (BAS); between Zambrano and Curimagua, alt. 1200-1500 m, 9 Aug. 1993, *G. Carnevali 3265* (MO, VEN).



This species was identified as *M. striatella* in *Venezuelan Orchids Illustrated* in 1965. It was first collected by Dr. Jany Renz in 1951, and in 1960 by Sr. Carlos García of Caracas. Plants were cultivated in the Netherlands where Christian Branger of Lunteren, realizing that it was not *M. striatella*, published an article in *Orchideeën* in 1980 with a photograph and a line drawing, correctly depicting it as an unidentified species.

*Masdevallia garciae* is endemic in the coastal mountain range of Venezuela where the Central American *M. striatella* was reported to have been found. However, the latter is either an introduction or a misidentified collection.

*Masdevallia garciae* is very similar to *M. striatella*, but the peduncle of the former is more or less triquetrous. The flowers of the latter are distinguished by the slightly shorter, thicker, sepaline tails. The sepaline tubes of both species are yellowish and striped in purple. The marginal folds of the lip of *M. garciae* are reduced to calli on the dorsum of the distal third. The base of the lip is neither concave nor deeply cleft, while that of *M. striatella* is shallowly concave and notched between thin, rounded, slightly upcurved basal margins.

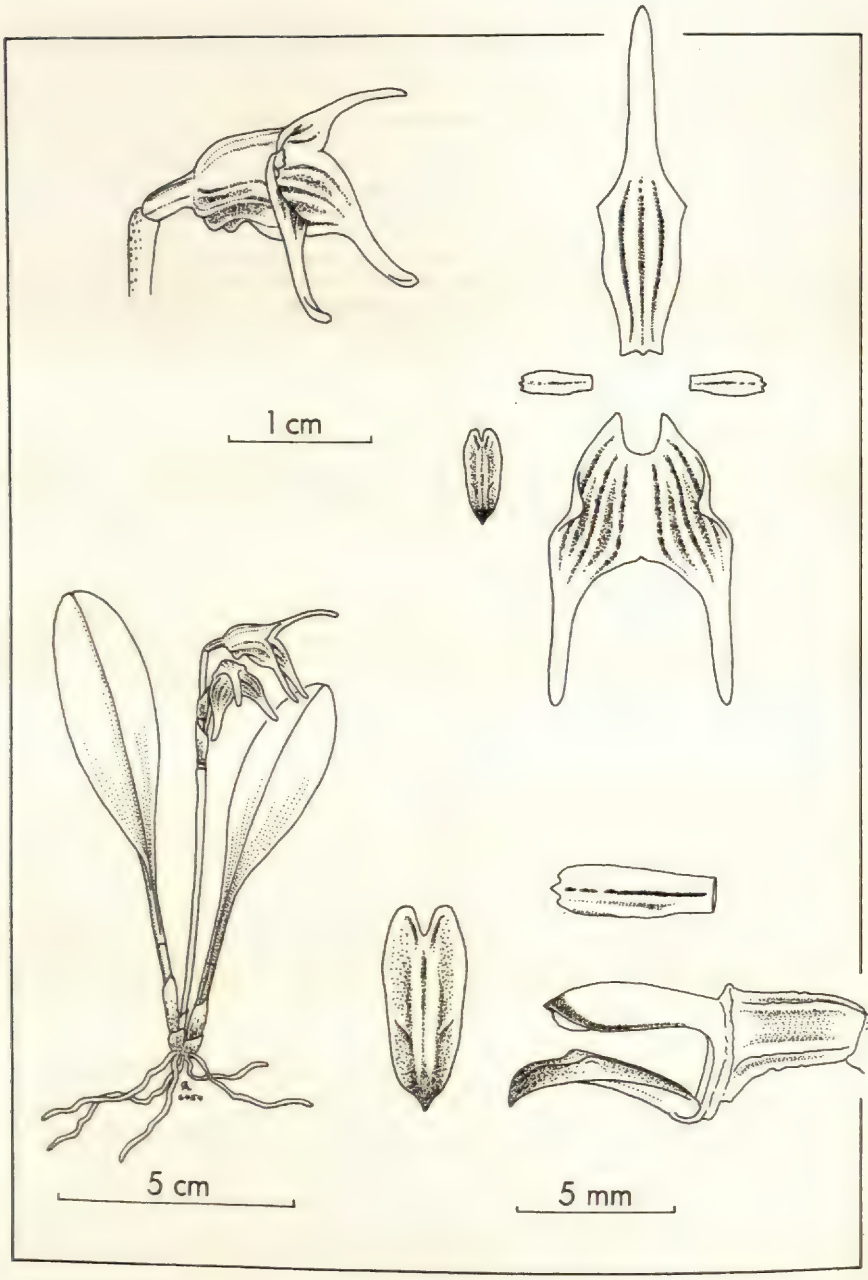


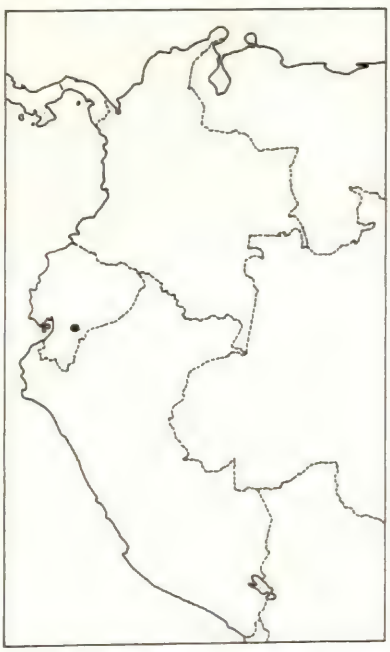

Plate 40. Masdevallia garciae

**Masdevallia guerrieroi** Luer & Andreetta, Selbyana 2: 373, 1978.

Ety.: Named in honor of Padre Antonio Guerriero of Bomboiza, Ecuador, co-discoverer of this species.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 9-12 cm long including a 1-2 cm long petiole, the blade narrowly elliptical, obtuse, 2-2.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a congested, successively few-flowered raceme borne by an erect to suberect, triquetrous peduncle 9-13 cm long, subtended by a short bract, from near the base of the ramicaul; floral bracts oblique, imbricating, 12-15 mm long; pedicel 15 mm long; ovary 5 mm long, green; **sepals** dull yellow-orange below the middle, suffused with dull purple above the middle, fleshy-rigid, glabrous, the dorsal sepal obovate, concave, ca. 20 mm long, 8 mm wide unexpanded, connate 12 mm to the lateral sepals to form a conical tube, the free portion narrowly triangular, acute, gradually acuminate into a yellow, decurved tail ca. 20 mm long, the lateral sepals ca. 20 mm long, connate 14 mm to form a rigid, deeply concave, cymbiform synsepal ca. 10 mm wide and 8 mm deep unexpanded, with a shallow, secondary mentum above the smaller primary mentum below the column-foot, the apices acute, contiguous, acuminate into decurving yellow tails ca. 10 mm long; **petals** white with lavender dots, oblong, 6.5 mm long, 1.5-2 mm wide, the obtuse apex emarginate, with a sharp carina along the labellar margin ending in an acute, deflexed tooth 1 mm long above the base; **lip** white, diffusely dotted with purple, oblong-subpandurate, 6.5 mm long, 2.5 mm wide, with marginal folds above the middle, the epichile thin, ovate, acute, lightly verrucose with serrulate margins, the hypochile oblong, truncate, hinged beneath; **column** white semiterete, 5 mm long, with a purple-spotted foot with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest along Río Kamoanakentsa near Bomboiza, alt. ca. 1000 m, Oct. 1977, A. Andreetta & A. Guerriero 61, cultivated by A. Andreetta in Cuenca, 21 Aug. 1978, *C. Luer 3323* (Holotype: SEL); same area, collected by A. Andreetta, cultivated at Paute, 24 May 1988, *C. Luer 13637* (MO).



This species is apparently rare and local, known from only one area near the remote Salesian Mission at Bomboiza where it was found by fathers Andreetta and Guerriero. It is characterized by a rigid, purple and orange flower that does not open widely. Although the dorsal sepal is connate only to the middle, the blade and tail arch forward over the boat-like synsepal. The tips of the lateral sepals are contiguous, with short recurving tails.

*Masdevallia guerrieroi* is closely allied to *M. calagrasalis* which is also restricted to southeastern Ecuador. It is distinguished from the latter by the rigid, boat-shaped synsepal with approximate apices. The petals of both species are purple with a descending, basal tooth.

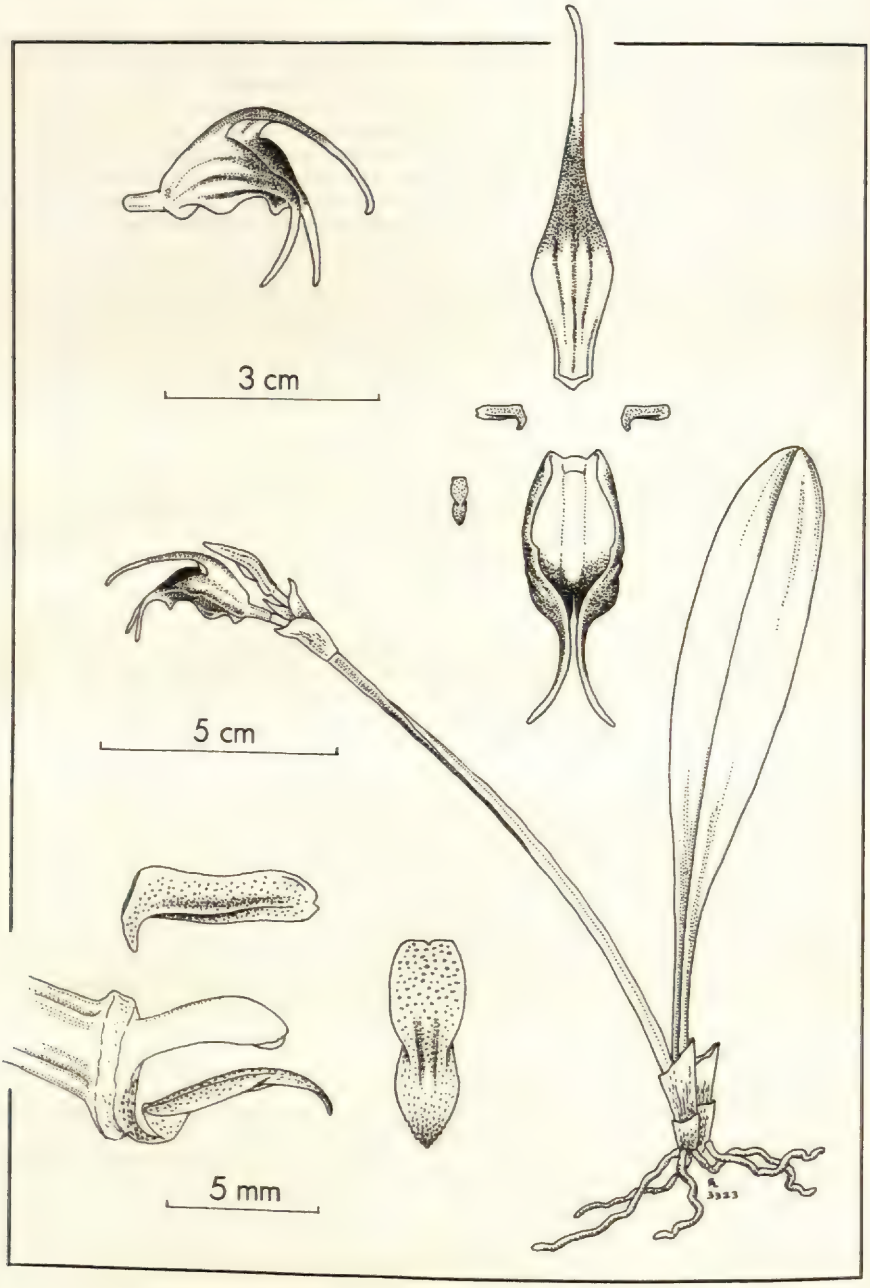



Plate 41. Masdevallia guerrieroi

**Masdevallia guttulata** Rchb.f., Linnaea 41: 118, 1877, non Rolfe, 1890.

Ety.: From the Latin *guttulatus*, "with small spots," referring to the spotted sepals.

Syn.: *Masdevallia guttulata* Rolfe, Gard. Chron. ser. 3, 8: 267, 1890, nom. superfl.

Syn.: *Masdevallia lawrencei* Kraenzl., Gard. Chron. ser. 3, 18: 324, 1895.

Ety.: Named for Sir Trevor Lawrence from whose collection Kränzlin received living material.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-16 cm long including the petiole 1.5-4 cm long, the blade narrowly elliptical, subacute, 1.3-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested, successively several-flowered raceme borne by a slender, triquetrous peduncle 12-25 cm long, with a bract at the base, from the base of a ramicaul; floral bracts thin, imbricating, 6-8 mm long; pedicel 7-10 mm long; ovary 3-4.5 mm long; **sepals** greenish white, glabrous externally, with tufts of short red hairs internally, the dorsal sepal obovate, 7-10 mm long, 5-6 mm wide, connate to the lateral sepals for 5-7 mm to form a cylindrical, sepaline tube, the free portion broadly triangular, the obtuse apex contracted into a stout, erect tail 10-15 mm long, the lateral sepals ovate, oblique, connate 8-15 mm into a lamina 15-20 mm long, 13-16 mm wide, with a broad, shallow mentum, the apices subacute, contracted into broad tails 3-4 mm long, or gradually narrowed to acute or subacute apices; **petals** white, oblong, 5 mm long, 1.5 mm wide, the truncate apex variously denticulate, the lower half with a longitudinal callus dotted with red, ending in a rounded swelling at the base; **lip** ivory, dotted with purple, oblong-subpandurate, 6 mm long, 2 mm wide, with oblique, marginal folds near or above the middle, the epichile obtuse, lightly verrucose, the hypochile oblong, truncate, hinged on the end; **column** greenish white, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

ECUADOR: Without locality, *G. Wallis s.n.* (Holotype: W); without locality or collector, cultivated at the Royal Botanic Garden, Glasnevin, Ireland, July 1890, by *F. W. Moore s.n.* (K). **Morona-Santiago**: near Bomboiza, collected by A. Andreetta 66, cultivated in Cuenca, 18 Aug. 1978, *C. Luer 3453* (SEL); along Río Cuyes, alt. 900 m, 2 Feb. 1986, *S. Dalström & T. Höijer 1131* (MO). **Pastaza**: Río Pastaza near Puyo, alt. 900 m, 13 Feb. 1973, *C. Luer, J. Luer & J. Brenner 3978* (SEL). **Zamora-Chinchipe**: East of Loja, *G. Hübsch s.n.* (W); "forest of Zamora, East Andes of Loja," alt. 800-1300 m, *F.C. Lehmann 7006* (AMES, LE); Río Zamora, alt. 1100 m, 26 July 1960, *C.H. Dodson 154* (MO, SEL); along Río Zamora between Yanzatza and Zamora, alt. 900 m, *C. Luer, J. Luer, A. Hirtz & W. Flores 10970* (MO); along a stream south of Yanzatza, alt. 850 m, 3 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12610* (MO).

This species, endemic in the wet forests of southeastern Ecuador, is locally frequent at moderately low altitudes about 1000 meters above sea level. Reports of this species occurring in Colombia and Venezuela are due to misidentifications. In *Venezuelan Orchids Illustrated*, Dunsterville's illustration of *M. norae* was published as *M. guttulata*.

In habit, *Masdevallia guttulata* is very similar to other members of the section. The relatively slender peduncle is either shorter of longer than the leaf, and the flower varies considerably in size. However, the flower is easily identified by the whitish sepals with minute tufts of red hairs within. The apices of the lateral sepals are usually triangular without forming a tail, but occasionally some narrowing is present so that the apex may bear a short, broad "tail." The petals and lip do not deviate significantly from the basic pattern seen in the section.

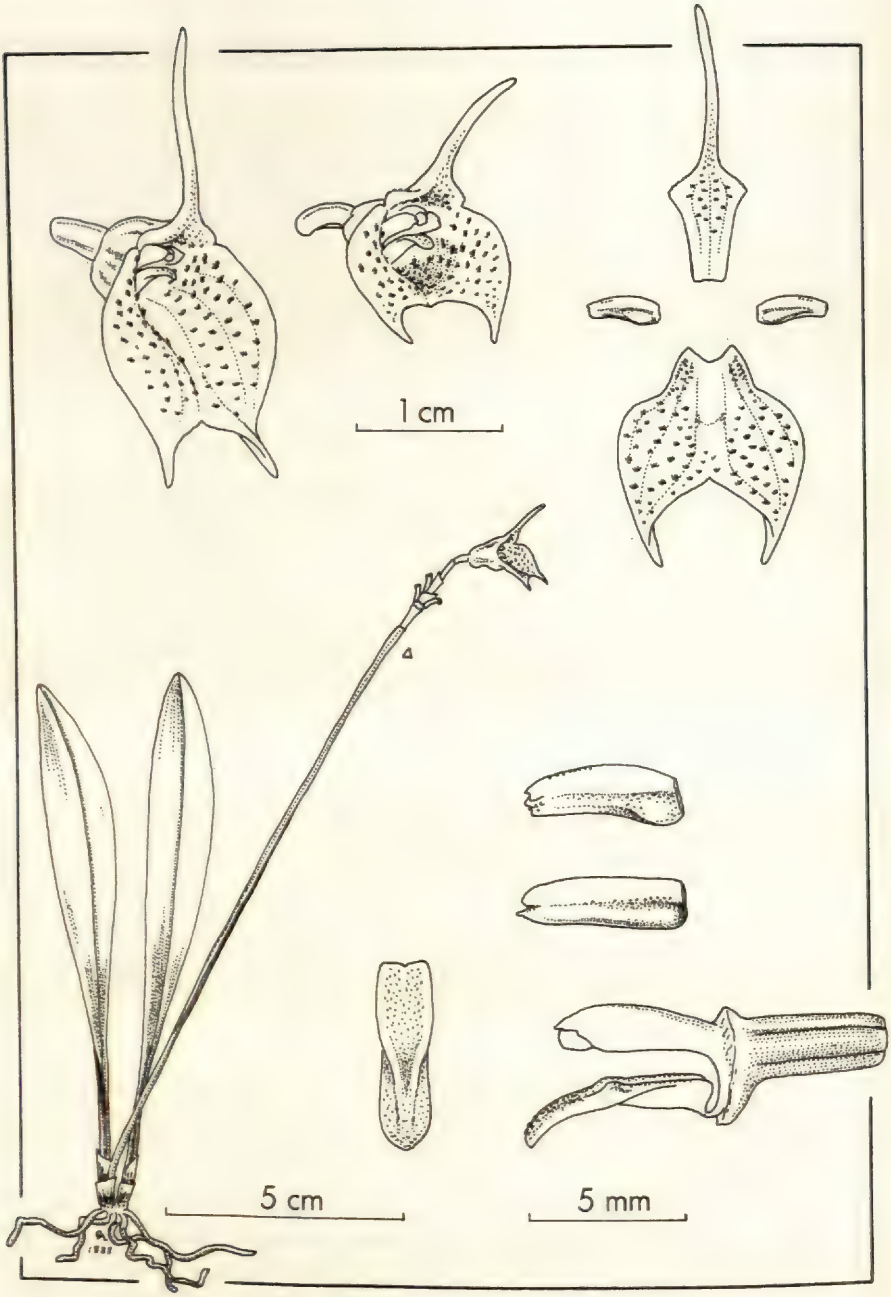



Plate 42. Masdevallia guttulata

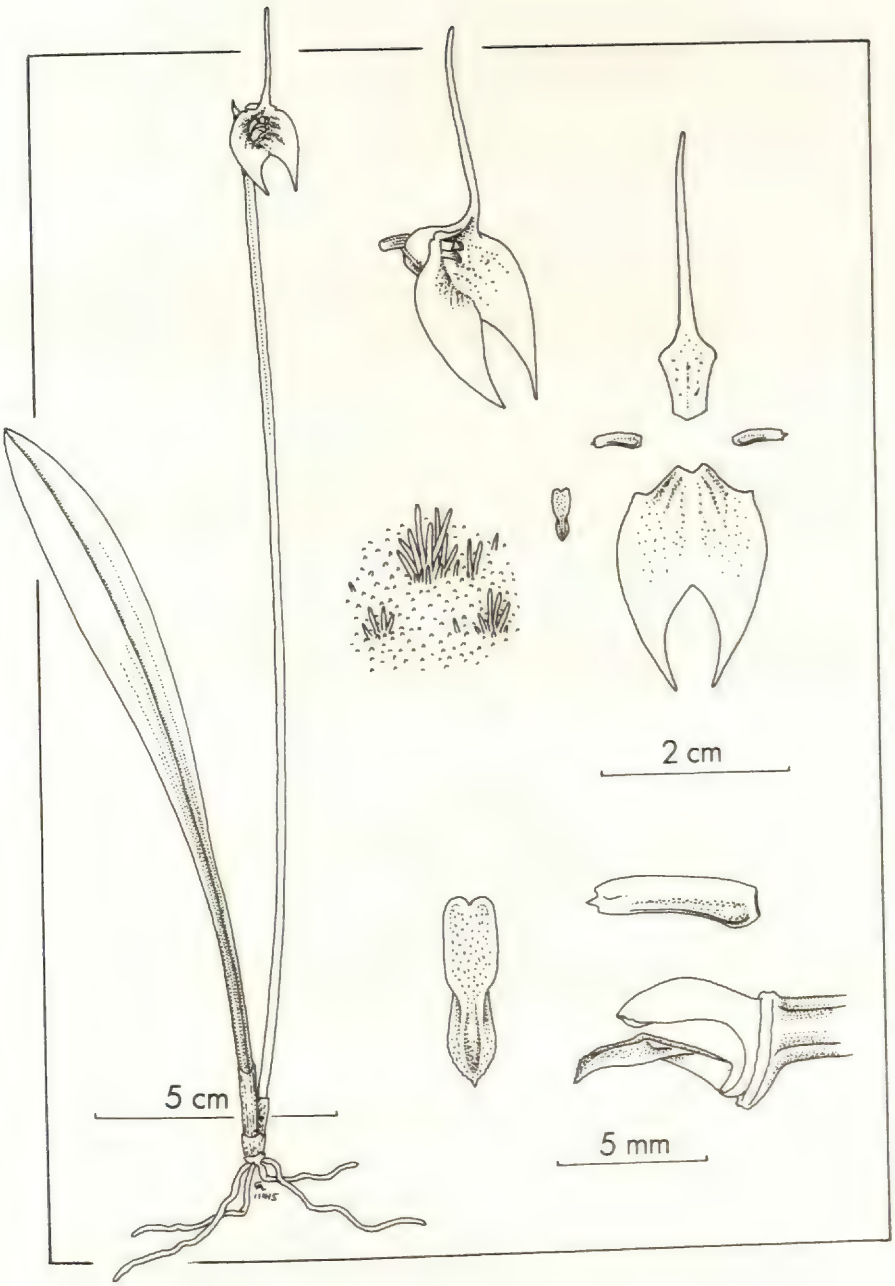


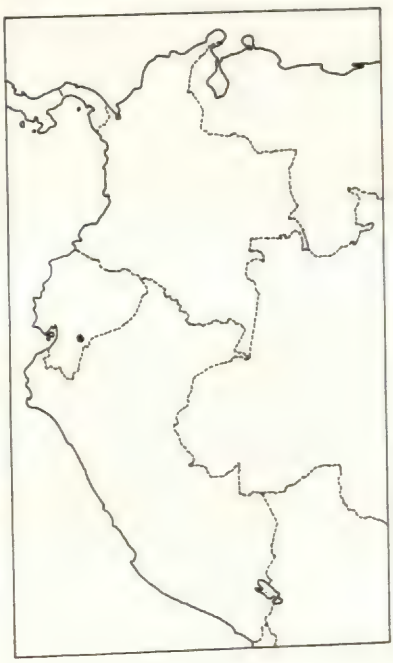

Plate 43. Masdevallia guttulata

**Masdevallia helgae** Königer & J.Portilla, Arcula 7: 194, 1997.

Ety.: Named in honor of his wife, Helga Königer.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-12 cm long including an ill-defined petiole 1-2 cm long, the blade elliptical, subacute, 2-2.5 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a congested, successively several-flowered raceme, borne by an erect, triquetrous peduncle 15-20 cm long, with a bract at the base, from the base of a ramicaul; floral bracts white, imbricating, 10-13 mm long; pedicels 10-12 mm long; ovary 6-7 mm long; **sepals** glabrous externally, cellular within, the blade of the dorsal sepal yellowish, veined in purple, obovate, 15-18 mm long, 9 mm wide, 3-veined, connate to the lateral sepals for 10 mm to form a cylindrical tube, the free portion triangular with the acute apex gradually contracted into an erect, purple tail ca. 4 cm long, slightly thickened distally, the entire length up to 60 mm long, the lateral sepals purple with darker purple veins, deeply connate mm into an oblong-ovate, acuminate, bifid lamina, up to 65 mm long, up to 23 mm wide, 6-veined, free for 15-18 mm at the apex into narrowly triangular, acute, approximate tails; **petals** white, marked with purple, with a purple midvein, thick, ovate, 8-10.5 mm long, 3.5 mm wide, the apex acute, more or less apiculate, acute, the labellar half with a longitudinal callus, ending in a low, rounded callus at the base; **lip** tan, purple-brown centrally, diffusely dotted with purple-brown, oblong, 10-13 mm long, 4-5.75 mm wide, the margins minutely erose above the middle, the apex subacute to obtuse, minutely verrucose, the disc channeled below the middle between a pair of longitudinal calli with erose margins below the middle, becoming verrucose toward the apex, with a similar, midline callus on the distal third, the base cordate, incised, hinged below; **column** white, suffused with purple along the margins, semiterete, 8 mm long, denticulate at the apex, the foot stout, 6 mm long, with a short, incurved extension.

ECUADOR: **Morona-Santiago**: El Pangui, alt. 1000 m, collected by José Portilla, purchased by W. Königer, flowered in cultivation in Munich, Germany, date unknown, by *W. Königer WK-81* (Holotype: M; clonotypes: K, QCA, Herb. H. Königer); same collector, purchased by P. Cloes, flowered in cultivation in Hasselt, Belgium, 23 May 1999, *P. Cloes s.n.* (MO), C. Luer illustr. 19228.



This species, apparently endemic in southeastern Ecuador, is most closely related to *M. sanguinea*, which in turn is similar to the widely distributed *M. vargasii*. *Masdevallia helgae* is distinguished by the longer, acuminate synsepal that is terminated by narrowly triangular, acute, approximate apices. The lip differs with the calli marginally erose below the middle, and verrucose toward the apex, features among others not revealed on the illustration published with the original description.

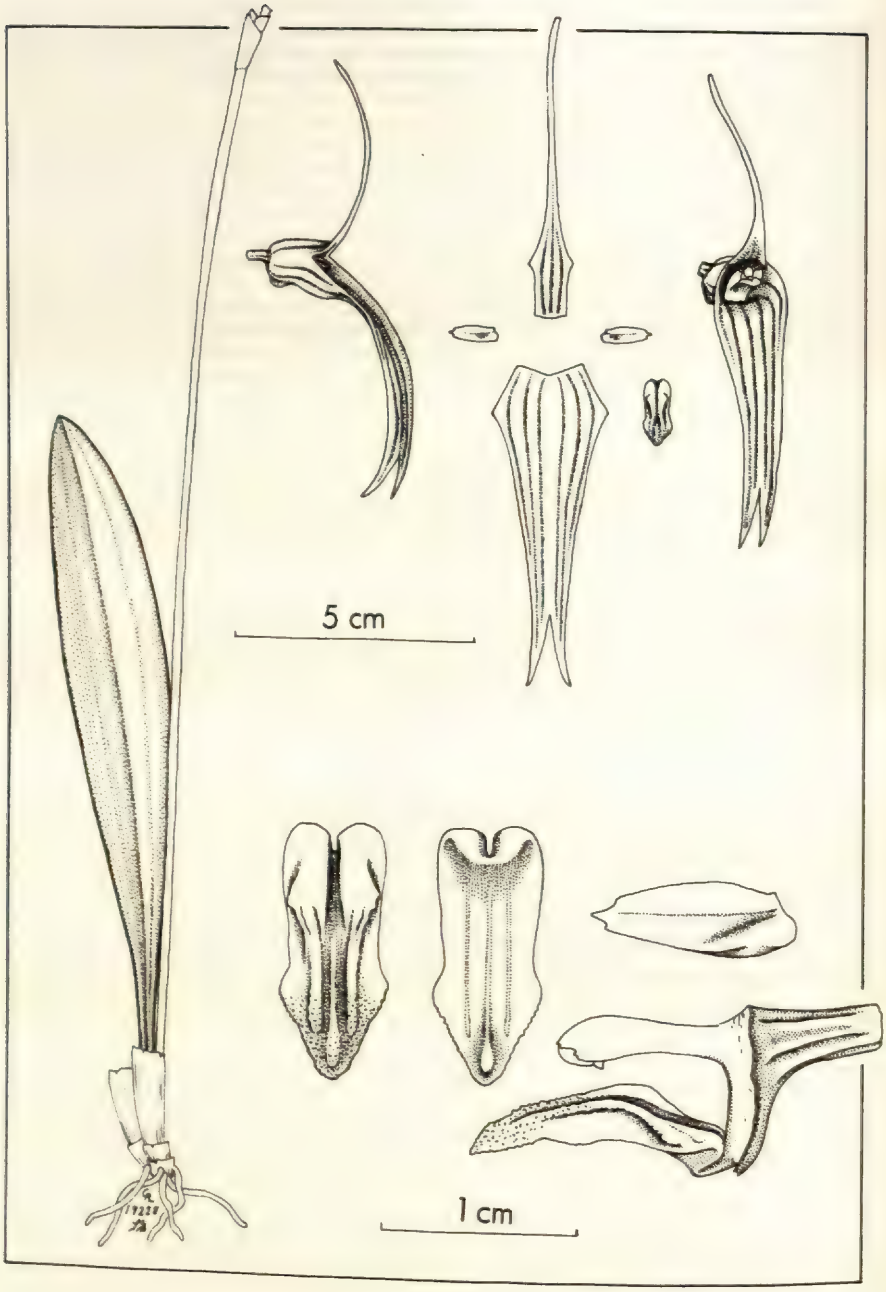


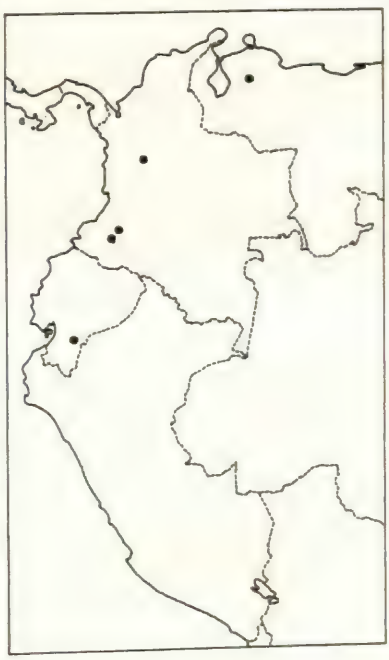

Plate 44. Masdevallia helgae

**Masdevallia impostor** Luer & Escobar, Orquideología 13: 166, 1979.

Ety.: From the Latin *impostor*, "an impostor; a deceiver," in reference to the long-mistaken identity of the species.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 9-16 cm long including the 1.5-2.5 cm long petiole, the blade elliptical, obtuse, 2-3.5 cm wide, narrowly cuneate below into the stout petiole. **Inflorescence** a congested raceme up to 14 cm long, of successive, single, large, showy flowers, borne by an erect to arching, triquetrous peduncle 15-35 cm long, with a bract at the base, from low on the ramicaul; floral bracts white, papery, imbricating, 10-25 mm long; pedicels 15-27 mm long; ovary 5-6 mm long; **dorsal sepal** red-brown to purple, ovate, 63-85 mm long including the narrowly triangular, orange, apical portion with tail, 10-11 mm wide, connate 9-10 mm to the lateral sepals to form a cylindrical tube, the acute apex gradually attenuated into the terete, erect tail; **lateral sepals** red-brown to purple, connate 27-30 mm into an ovate lamina 15-17 mm wide, with revolute sides, the acute apex split into slender, forward, approximate, greenish white tails, 65-85 mm long including the tails, the base constricted at the opening of the sepaline tube; **petals** yellow-white, oblong, 6.5-8 mm long, 2.75-3 mm wide, the obtuse apex irregularly tridentate, the labellar half longitudinally callous; **lip** diffusely dotted with purple on rose or cream, subpandurate, 6-7 mm long, 2-2.5 mm wide, with obtuse marginal folds near the middle, shallowly channeled on the disc between, the epichile verrucose, obtuse to rounded with a verrucose keel beneath the apex, the hypochile oblong, hinged beneath; **column** white with purple margins, semiterete, 5-6 mm long, the foot 3 mm long with an incurved extension.

COLOMBIA: **Antioquia**: Betulia, Piñonal, alt. 1600-1800 m, 20 Dec. 1977, *E. Segura s.n.* (Holotype: JAUM; Isotype: SEL; clonotype: K); Angelopolis, alt. 1600-1700 m, collected by J.M. Sema, cultivated by M. & O. Robledo, 12 Jan. 1978, *R. Escobar s.n.* (JAUM); Betania, Farallones del Citará, alt. 1600-1800 m, June 1970, collected by J.M. Sema, cultivated by M. & O. Robledo, 30 Sept. 1977, *R. Escobar 1825* (JAUM); Betania, alt. 1900 m, collected by E. Valencia, 1986, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13246* (MO); Venecia, La Amalia, alt. 1500-1700 m, Feb. 1975, collected by O. Robledo, cultivated at La Ceja, 6 Oct. 1977, *C. Luer 1924* (SEL). **Cauca**: El Almorzadero, *E. André K-804* (K); near Hatico near Popayán, alt. 5500 ft., 19 Nov. 1878, *F.C. Lehmann s.n.* (W); highlands of Popayán, alt. 1500-1900 m, 1878, *F.C. Lehmann B.T. 177* (MO); same area, alt. 1500-1800 m, 21 Aug. 1881, *F.C. Lehmann 6746* (AMES, K, LE, MO); same area, alt. 1600-1900 m, 23 Apr. 1883, *F.C. Lehmann 2816* (AMES, BM, BR, G, K, LE, MO, W); same area, cultivated by Amalia Lehmann de Sarria in Popayán, 26 July 1978, *C. Luer 3011A* (SEL).
VENEZUELA: **Lara**: La Sanare, Yacambú, Cubiro, cultivated by G.C.K. Dunsterville at El Hatillo, 23 July 1982, *C. Luer 8084* (SEL).
ECUADOR: **Morona-Santiago**: cloud forest near Pangui, alt. 1800 m, Oct. 1983, collected by A. Andreetta & M. Portilla, cultivated at Hostería Uzhupud, 16 Mar. 1984, *C. Luer 9530* (MO).



A watercolor painting of this species from near Popayán, Colombia, made by Lehmann around 1878 with the intended name *Masdevallia maculata* var. *popayanensis*, is at Kew. At that time, it was believed to be *M. maculata*, which is endemic in coastal Venezuela. *Masdevallia impostor* is found locally in Colombia, western Venezuela, and southeastern Ecuador.

*Masdevallia impostor* is recognized by the large, slender, bilabiate flower borne in a congested, successively flowered raceme by a long, triquetrous peduncle. From the short sepaline tube the narrow dorsal sepal stands erect and the synsepal protrudes forward with revolute margins instead of decurving, the apices continuing as approximate, white tails.

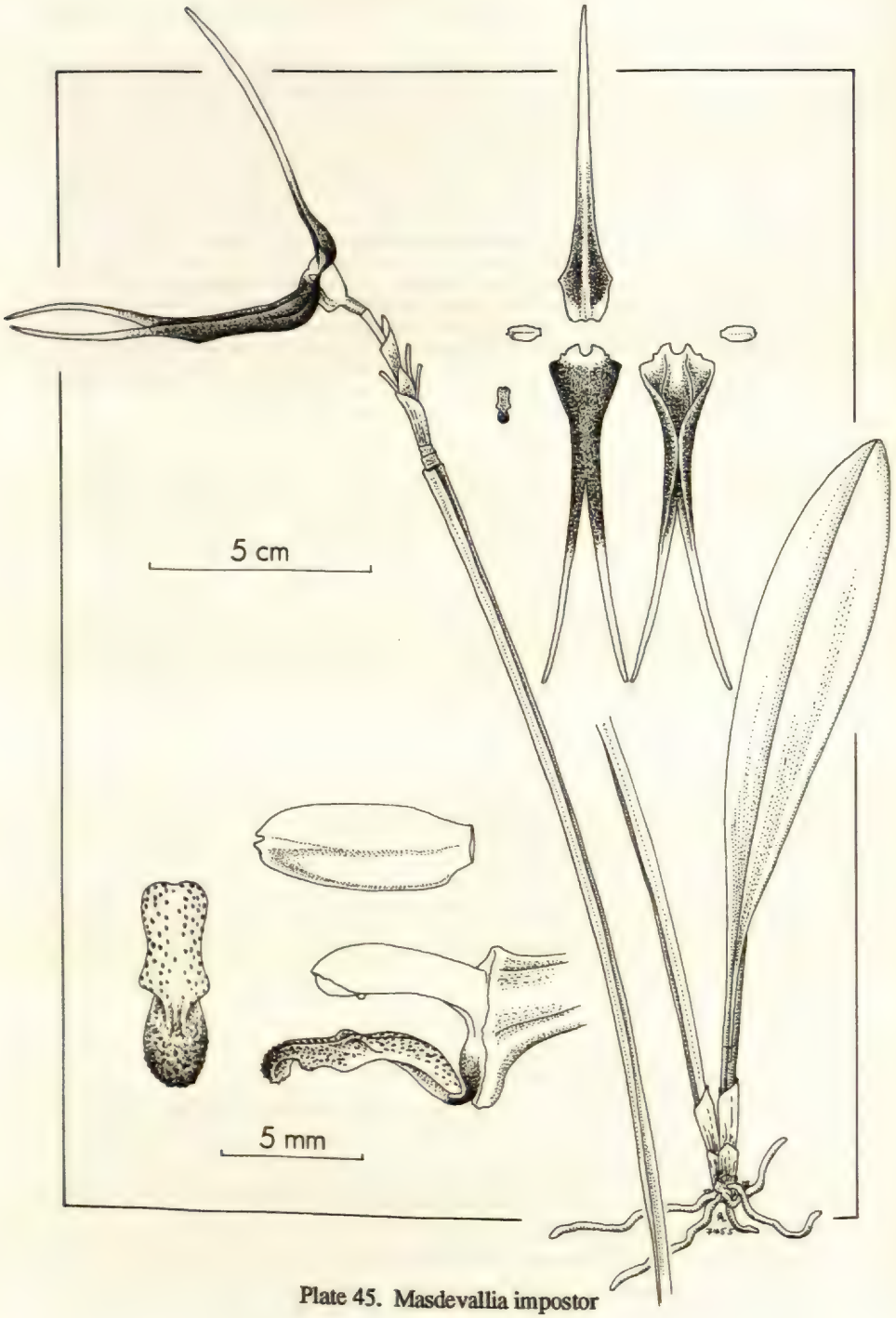



Plate 45. Masdevallia impostor

**Masdevallia infracta** Lindl., Gen. Spec. Orchid. 3: 193, 1833.

Ety.: From the Latin *infractus*, "sharply bent," referring to the shape of the sepaline tube.

Syn.: *Masdevallia tridentata* Lindl., Comp. Bot. Mag. 2: 357, 1836.
Ety.: From the Latin *tridentatus*, "three-toothed," probably referring to the three, tailed sepals.

Syn.: *Masdevallia aurantiaca* Lindl., Comp. Bot. Mag. 2: 357, 1836.
Ety.: From the Latin *aurantiacus*, "orange-colored," referring to a color-form of the species.

Syn.: *Masdevallia triquetra* Schweidw., Allg. Gartenzeitung 7: 146, 1839.
Ety.: From the Latin *triquetrus*, "three-angled," referring to the peduncle.

Syn.: *Masdevallia longicaudata* Lemaire, Ill. Hort. 15: Misc. 109, 1868.
Ety.: From the Latin *longicaudatus*, "long-tailed," referring to the sepaline tails.

Syn.: *Masdevallia albida* Lemaire, Ill. Hort. 15: Misc. 109, 1868.
Ety.: From the Latin *albidus*, "white," referring to the color of the flower.

Syn.: *Masdevallia aristata* Barb.Rodr., Gen. Spec. Orch. Nov. 1: 30, 1877.
Ety.: From the Latin *aristatus*, "aristate," referring to the sepaline tails.

Syn.: *Masdevallia infracta* var. *purpurea* Rchb.f., Gard. Chron. n.s., 20: 460, 1883.
Ety.: From the Latin *purpureus*, "purple," referring to a color-form of the species.

Syn.: *Masdevallia forgetiana* Kraenzl., Gard. Chron. ser. 3, 18: 484, 1895.
Ety.: At the request of F. Sander, named in honor of Mr. Forget, who collected this species.

Syn.: *Masdevallia infracta* var. *aristata* (Barb.Rodr.) Cogn., Fl. Bras. 3(4): 328, 1896.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 8-18 cm long including the petiole 1-3 cm long, 1.5-2.4 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a congested, successively few-flowered raceme, up to 2 cm long, borne by a relatively slender, erect peduncle, round to triquetrous, 9-16 cm long, with a bract at the base, from low on the ramicaul; floral bracts thin, imbricating, fugacious, 7-20 mm long; pedicels 15-25 mm long; ovary 5-6 mm long; **sepals** white to yellow, variously suffused with purple, occasionally entirely purple, glabrous externally, cellular-glandular to pubescent within, the dorsal sepal oblong-obovate, 15-17 mm long, 7-10 mm wide, connate to the lateral sepals for 11-13 mm to form a campanulate, slightly laterally compressed sepaline tube, the obtuse apex contracted into a slender, erect tail 3-4 cm long, the lateral sepals broadly ovate, oblique, obtuse, 10-13 mm long, connate to each other for 10-14 mm into a lamina 18-20 mm wide, forming a deep mentum with the column-foot below a central constriction, the rounded apices of the free portions close or nearly in apposition, contracted into slender tails 2-3 cm long; **petals** white, oblong, 5-7 mm long, 1.5-2 mm wide, with a low, longitudinal callus within the margin of both halves, the more or less truncate apex 1- to 3-lobulate; **lip** yellow to green, flecked with purple or brown, oblong-subpandurate, 6-7 mm long, 2-2.25 mm wide, with marginal folds slightly above the middle, the epichile ovate, subverrucose, rounded to subtruncate, sometimes apiculate, revolute, the hypochile oblong, the disc shallowly channeled, the base subcordate, hinged beneath; **column** light greenish, semiterete, 5-6 mm long, the foot 4 mm long, with an incurved extension.

BRAZIL: **Rio de Janeiro**: Organ Mountains, without collection data, *Gardner 647* (Holotype: K; Isotypes: P, W); Organ Mountains, without collection data, *J. Miers s.n.* (K); Organ Mountains, Pedro Bonita Lycea, Nov. 1836, *Gardner 254* (K); near Rio de Janeiro, 1838-1842, *Capt. Wilkes s.n.* (AMES); Organ Mountains, June 1887, *J.T. de Moura 61* (BR); Theresópolis, Feb. 1888, *J.T. de Moura 101* (BR); Cantagallo, 1844, *M. Riedel s.n.* (W); Rio Macahé, 1845, *M. Riedel 15* (W); Petrópolis, 1859-60, *Wawra & Maly 403* (W); "Rio," 1888, *A. Glaziou 17264* (K, P); "Rio," 1892, *A. Glaziou 19884* (K, P); Serra dos Orgaos, Picada do Rancho Frio, alt. 1200 m, Aug. 1940, *A.C. Brade 16754* (RB); Theresópolis, Foz Guarani, 12 Jan. 1949, *Rizzini 399* (RB); between Theresópolis and Petrópolis, 15 Nov. 1965, *P.I.S. Braga 1754* (RB); near Rio de Janeiro, 1838-1842, *Capt. Wilkes s.n.* (AMES); Corcovado, alt. 530 m, 7 Dec. 1913, *P. Dusén 14347* (AMES, S); Petrópolis, Araras, Vale das Videiras, alt. 950-1200 m, 6 Jan. 1974, *D. Sucre et al. 10593* (RB, RJ); Araras,

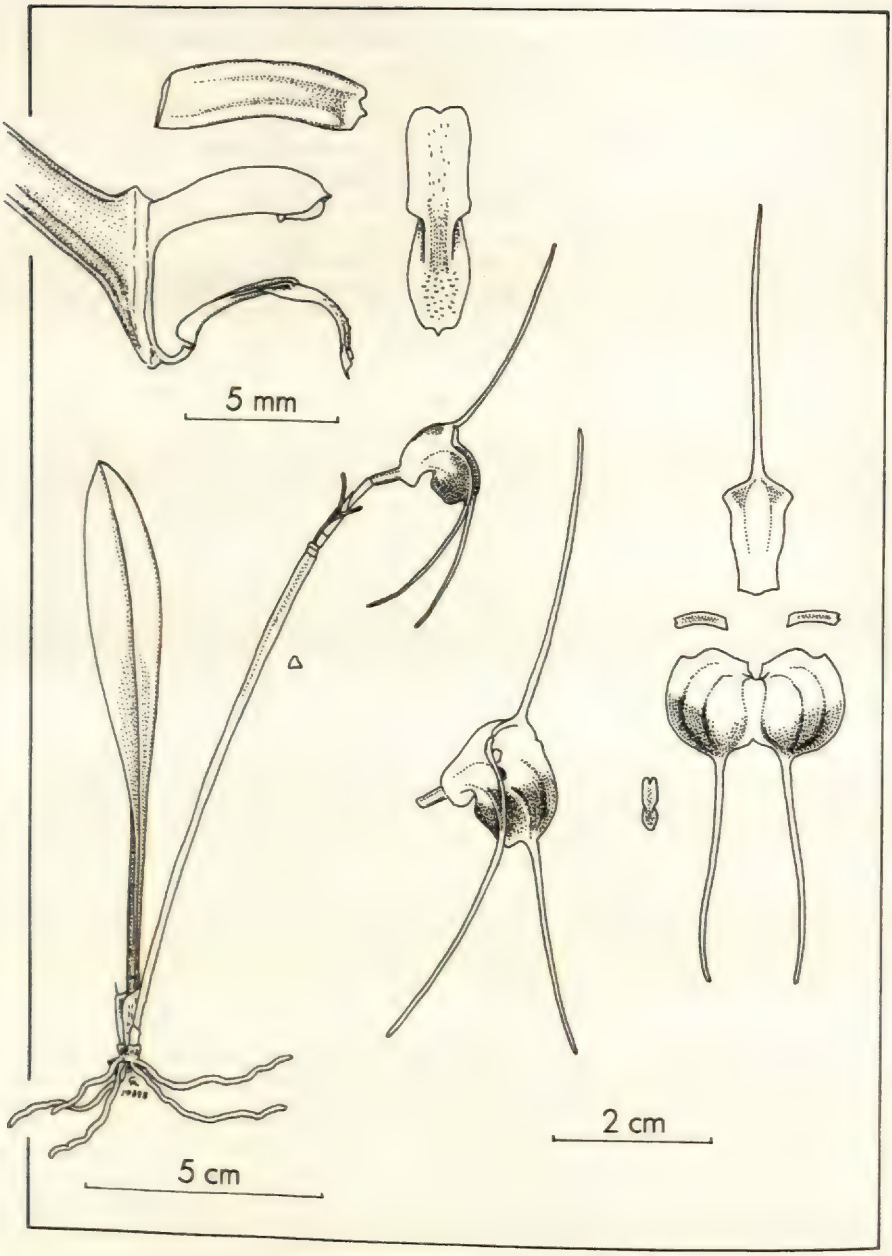



Plate 46. Masdevallia infracta

caminho do Capoeirao, alt. ca. 900 m, 27 Mar. 1977, *G. Martinelli 1564* (RB); Itatiaya-Taquaral, 9 Dec. 1927, *P.C. Porto 1597* (RB); Mt. Itatiaya, 25 Dec. 1915, *Oakes Ames & Blanche Ames 117* (AMES); Rio de Janeiro, without locality, *A. Glaziou 17264, 19884* (C). **Espirito Santo**: Castelo, Forno Grande, alt. 1000-1400 m, 6 Dec. 1956, *E. Pereira 2107* (RB, RJ); Alfredo Chaves, Vila Sao Bento de Uranio, alt. 1000 m, 5 May 1982, *G. Martinelli & R. Kautsky 8123* (RB). **Guanabara**: Mata do Sumaré, alt. 300 m, 25 Dec. 1967, *D. Sucre 1745* (RB, RJ). **Minas Gerais**: on trees along the banks of Rio Bananal, *M. Descourtilz s.n.* (holotype of *M. tridentata*: K); near Alto Macahé, *M. Descourtilz s.n.* (holotype of *M. aurantiaca*: K); Serra de Caldas, 16 Oct. 1864, *Regnel III 1131* (syntypes of var. *aristata*: BR, P, S); Serra do Gongo Soco, Rio Agua Limpa 16 Oct. 1922, *F.C. Hoehne 4863* (HBG); Fazenda Sâo Matens, Rio do Peixe, 21 Jan. 1969, *V. Gomes 28* (RJ). **Paraná**: Cerro Azul, Morro Grande, 24 Sept. 1953, *G. Hatschbach 3233* (RJ); Cerro Azul, Rio Turvo, 5 Oct. 1977, *G. Hatschbach 40323* (C). "Northern Brazil": collected by Mr. Forget, cultivated by F. Sander & Co., obtained from F. Sander & Co. and cultivated at Glasnevin, by F.W. Moore, presented to K, *Mr. Forget s.n.* (K, a yellow form of *M. infracta* fide Rolfe).

BOLIVIA: **Chuquisaca**: San Juán, alt. 3,200 ft., *R.S. Williams 230* (NY).

This species is relatively frequent in much of the mountainous areas of southern Brazil where numerous forms in color and size are found. The flowers are usually a tint or shade of purple, and a yellow form was described by Kränzlin as *M. forgetiana*. One of the earliest in the genus to be named, it was first described from the Organ Mountains of Brazil by Lindley in 1833. Identifications of this species from Peru, Ecuador, Colombia, Venezuela, and the Guianas are erroneous. Outside of Brazil it is known only from a single collection from southern Bolivia.

Vegetatively, the plants are inseparable from the majority of medium-sized species. The peduncle is usually triquetrous and nearly or barely as long as the leaf. Often a peduncle is triquetrous below the middle, gradually becoming round in cross section toward the raceme. The sepaline tube is more or less laterally compressed and suborbicular with a prominent constriction below, just distal to the mentum. The petals are oblong with longitudinal thickening along both halves. The lip is divided by a pair of marginal folds into a subverrucose epichile and an oblong hypochile.

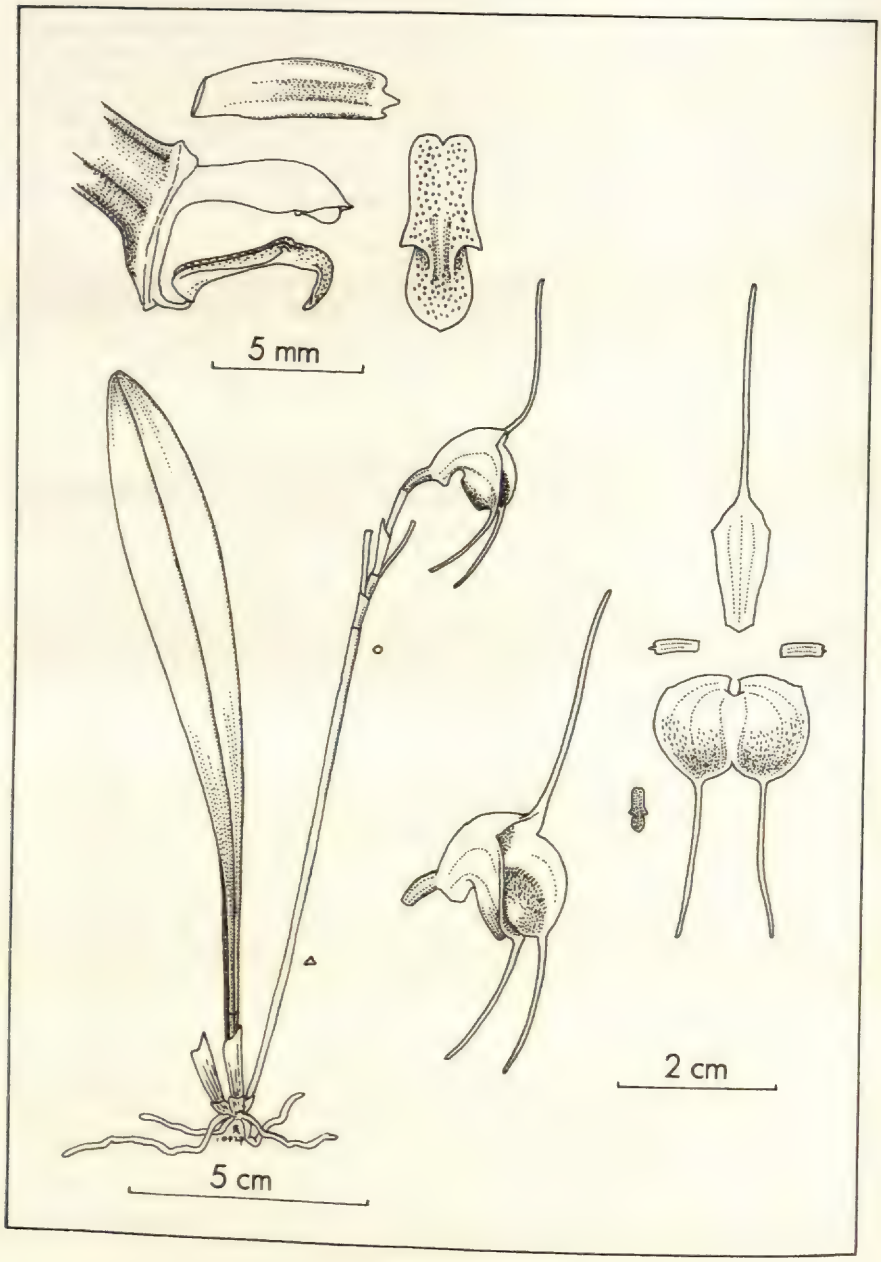



Plate 47. Masdevallia infracta

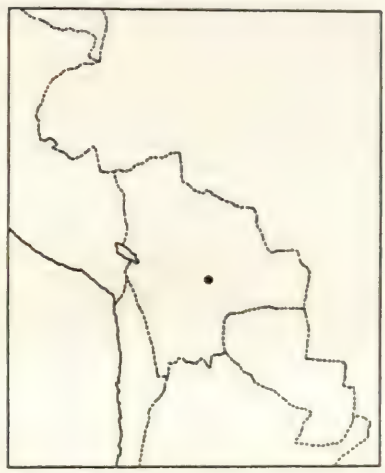
**Masdevallia isos** Luer, Phytologia 42: 463, 1979.

Ety.: From the Greek *isos*, "equal, similar," in allusion to the similarity of the species to many others in the section.

**Plant** small, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 4-11 cm long including an indistinct petiole 1-2 cm long, the blade elliptical to obovate, the apex subacute to obtuse, 1.5-1.8 cm wide, gradually narrowed below to the channeled base. **Inflorescence** a single flower or 2 flowers simultaneously in a congested raceme, borne by a stout, triquetrous peduncle 4-7 cm long, subtended by a bract, from the base of a ramicaul; floral bracts tubular, imbricating, 10-13 mm long; pedicel 11-18 mm long; ovary 3 mm long; **sepals** glabrous, microscopically verrucose within, the dorsal sepal yellow, obovate, 10-13 mm long, 6 mm wide, connate to the lateral sepals for 7-8 mm to form a cylindrical tube, the free portion triangular, acute, acuminate into a slender, erect tail 7-8 mm long, the lateral sepals rose purple, with the midvein prominent externally, connate 10-13 mm, into a synsepal 13-17 mm long, 13-15 mm wide, forming a shallow, secondary mentum, the free portions obtuse, contracted into slender yellow tails 4-7 mm long; **petals** white, oblong, 6 mm long, 1.5 mm wide, the apex subtruncate, shallowly tridentate, the labellar margin with a low, longitudinal callus ending in a short, conical protrusion at the base; **lip** pale yellow, diffusely spotted with red-purple, oblong, 7 mm long, 3 mm wide, with oblique marginal folds above the middle, the epichile rounded, microscopically papillose, the disc shallowly sulcate between the folds, the hypochile oblong, truncate, hinged on the end; **column** green, with purple margins, semiterete, 6 mm long, the stout foot 2 mm long with a short, incurved extension.

BOLIVIA: **Santa Cruz**: between Samaipata and Vera Cruz, alt. ca. 1000 m, Aug. 1977, collected by Helen Kuhn, cultivated at J & L Orchids, Easton, CT, 11 Mar. 1978, *C. Luer 2793* (Holotype: SEL). **La Paz**: Inquisivi, epiphytic at the pass between Circuata and Inquisivi, alt. 2200 m, 28 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5779* (SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13266* (MO).

This little species is endemic in central Bolivia. It is most similar to the frequent and variable *M. bicolor*-complex, but it is distinguished from the latter by proportionately short tails of the lateral sepals, petals with a conical callus at the base, and a lip with a round, microscopically papillose epichile that is slightly wider than the hypochile.



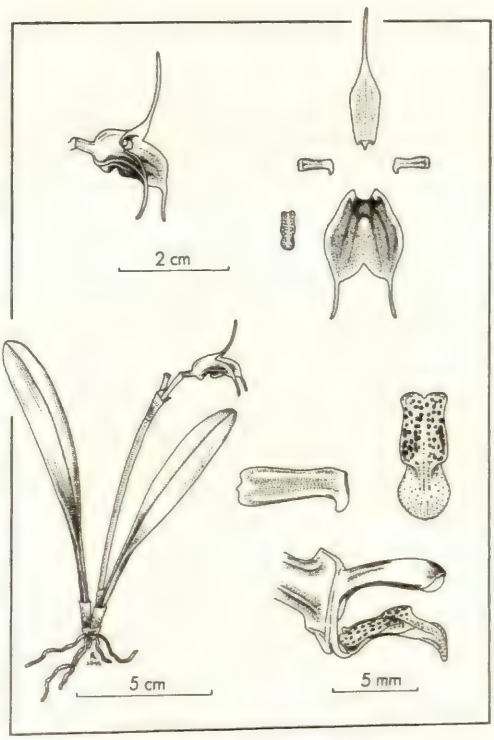



Plate 48. Masdevallia isos

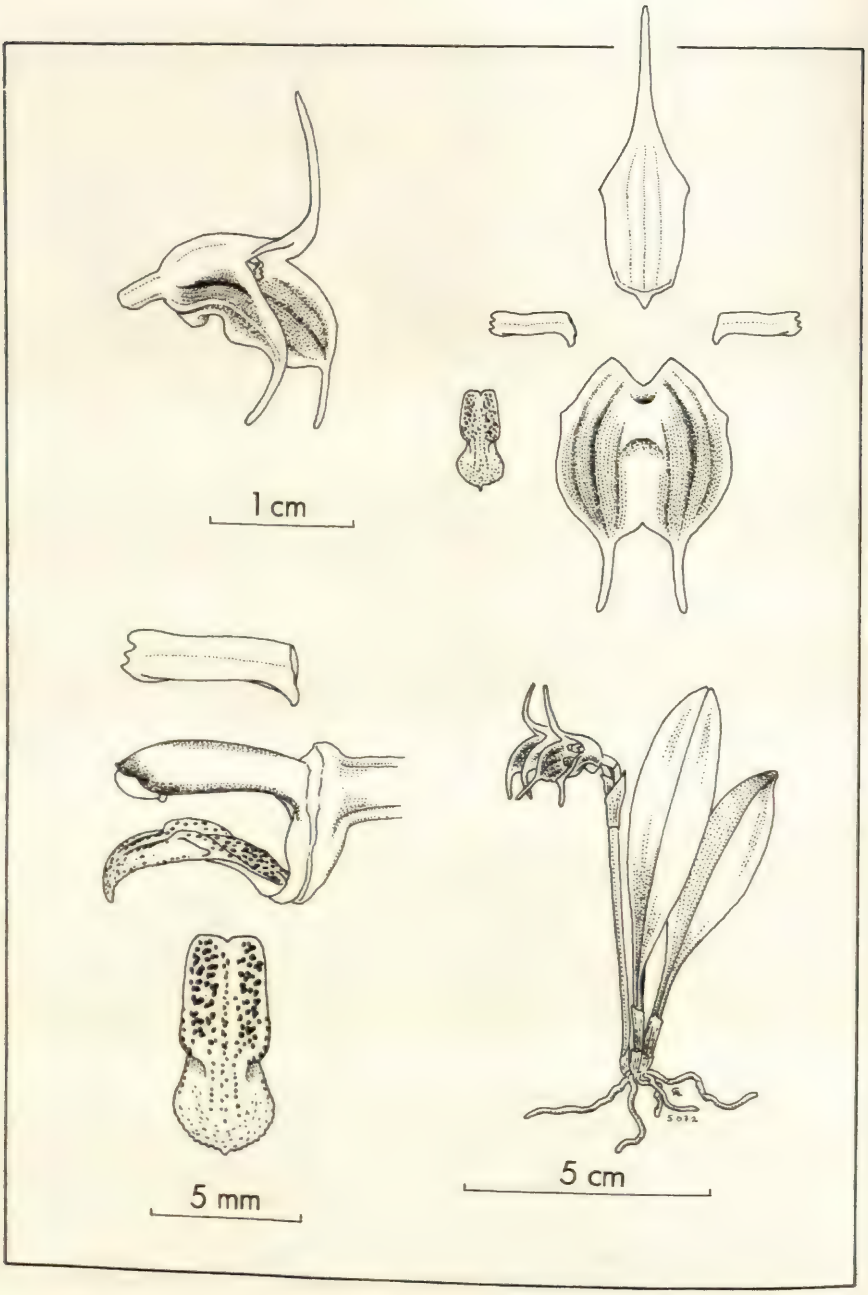


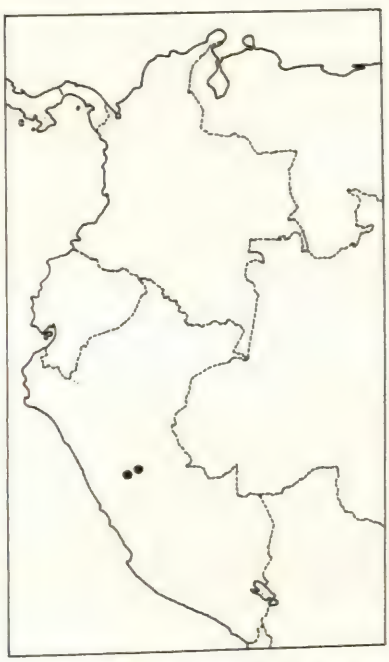

Plate 49. Masdevallia isos

**Masdevallia kuhniorum** Luer, Phytologia 39: 208, 1978, as *kuhnorum*.

Ety.: Named for Mr. and Mrs. Leroy Kuhn who cultivated this species.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, 8-16 cm long including an indistinct petiole 2-4 cm long, the blade elliptical-obovate, 1.5-2.8 cm wide, obtuse to rounded at the apex, gradually narrowed below to the subpetiolate base. **Inflorescence** a congested, successively few-flowered raceme, borne by a stout, suberect, triquetrous peduncle 8-16 cm long, up to 5 mm thick above, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 8-10 mm long; pedicel 5-12 mm long; ovary 4-6 mm long; **sepals** rigidly fleshy, the dorsal sepal pale green, oblong-obovate, minutely subverrucose within, 15 mm long, 8 mm wide, connate to the lateral sepals for 11 mm to form a broad, cylindrical tube, the free portion triangular, acute, acuminate into a thick, suberect tail ca. 25 mm long, the lateral sepals dark purple, greenish along the veins externally, verrucose within, connate 25 mm into broadly ovate, bifid lamina, 30-37 mm long, 15-22 wide, forming a broad, shallow mentum, the free portions acuminate into thick, tail-like apices 6-10 mm long; **petals** white, dotted with purple, oblong, 8 mm long, 3.5 mm wide, the apex truncate, shortly tridentate, the labellar half with a low, longitudinal callus terminating in a rounded prominence above the base; **lip** dull yellow, marked with purple, oblong-subpandurate, 8-9 mm long, 4.5-5 mm wide, with oblique, obtuse, marginal folds above the middle, the disc shallowly channeled, with the apex rounded, verrucose, with the base truncate, hinged below; **column** green, with purple margins, semiterete, 6-7 mm long, the foot 4 mm long with a short, incurved extension.

PERU: **Huánuco**: epiphytic between Tingo Maria and Pucallpa, alt. 1100 m, collected by Janet Kuhn et al., Mar. 1975, cultivated by J & L Orchids, Easton, CT, 8 Nov. 1977, *C. Luer 2130* (Holotype: SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13279* (MO); epiphytic along banks of Río Huallaga, alt. 750 m, 10 Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer, E. Verástegui & M. Arias 5324* (SEL).



This coarse species is relatively frequent in the forests at a moderately low altitude in central Peru where it is apparently endemic. Growing within the area where Poeppig collected, no doubt he found this species, but many of his collections were lost on their journey back to Europe.

*Masdevallia kuhniorum* is characterized by large, thickly coriaceous leaves and a stout, triquetrous peduncle, a combination of features that applies to many species in the subsection. The relatively large, purplish flower is fleshy, reminiscent of the Ecuadorian *M. angulata*. The tail-like apices of the lateral sepals are thickly and narrowly triangular. The lip is large and thick with obtuse marginal folds above the middle, and the obtuse apex is verrucose.

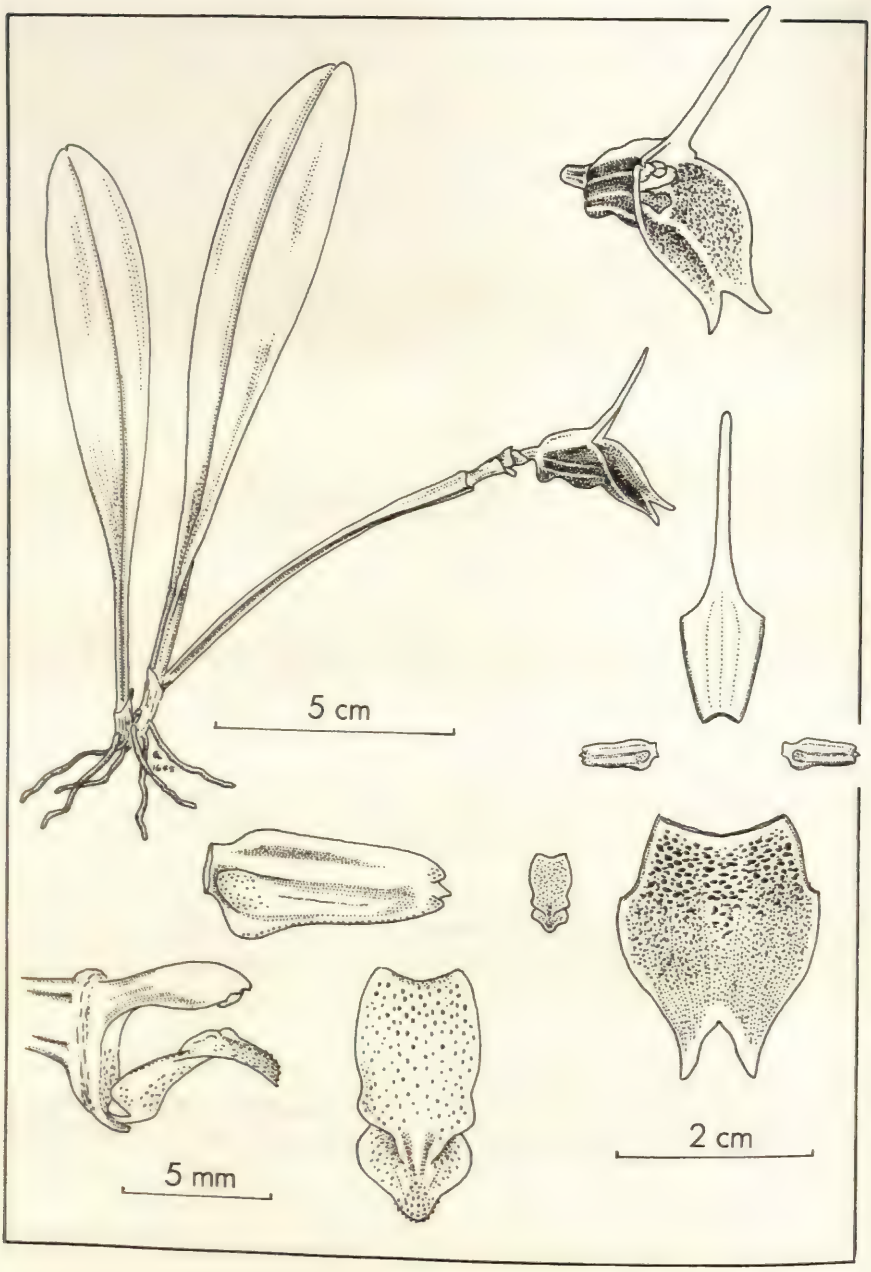



Plate 50. Masdevallia kuhniorum

**Masdevallia lenae** Luer & Hirtz, Lindleyana 6: 87, 1991.

Ety.: Named in honor of Lena Åmby of Falun, Sweden, co-collector of this species.

Syn.: *Masdevallia gracilior* Königer & J.Portilla, Arcula 4: 99, 1995.
Ety.: From the Latin *gracilior*, "more slender," referring to the peduncle.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, the blade narrowly elliptical, subacute, 7-9 cm long including an indistinct petiole 1.5-2 cm long, 1.5-1.8 cm wide, narrowed below into the base. **Inflorescence** a congested raceme of small, successive flowers borne by a slender, suberect, triquetrous peduncle 10-11 cm long, 0.8 mm thick, spotted with purple, with a bract at the base, from low on the ramicaul; floral bracts tubular, imbricating, 6 mm long; pedicel 4-7 mm long; ovary 5 mm long; **sepals** dark purple, glabrous, the dorsal sepal ovate, the blade 5-6 mm long, 4 mm wide, connate to the lateral sepals for 2.5 mm to form a short, cylindrical tube, the apex acute, acuminate into a slender, recurved, yellow-green tail 20-22 mm long, the lateral sepals connate 10 mm into an ovate lamina, 11 mm long, 11 mm wide expanded, the free portions obtuse, contracted into slender tails 13-15 mm long, similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1 mm wide, the apex obtuse, obscurely lobulate, the labellar margin with an indistinct, longitudinal callus above the middle; **lip** dark purple, narrowly oblong-pandurate, 4.5 mm long, 1.5 mm wide, the sides undulate near the middle with marginal folds just above the middle, the epichile elliptical, acute, minutely subverrucose, recurved, the disc longitudinally channeled, the hypochile oblong with a pair of low, rounded calli just proximal to the marginal folds, the base subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 1.5 mm long, with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in wet forest north of Gualaquiza, alt. 1800 m, 8 Mar. 1990, *S. Dalström & L. Årnby 1463* (Holotype: MO), C. Luer illustr. 14784; Cordillera del Cutucú, alt. 800 m, Aug. 1989, *A. Hirtz & X. Hirtz 4350* (MO); Canton Mendez, alt. 600 m, collected by J. Portilla, flowered in Munich, Germany, without date, by *W. Königer WK-50* (holotype of *M. gracilior*: M; clonotypes: K, QCA).

This species was first discovered by Alexander and Ximena Hirtz in the Cordillera del Cutucú, and again the following spring in a nearby forest by Stig and Lena Dalström. Superficially, *M. lenae* resembles the "round-stemmed" *M. mayaycu* from the Cordillera del Condor.

Vegetatively, *M. lenae* is not remarkable, but the inflorescence is distinctive. The congested, successively flowered raceme is borne by a very slender, triquetrous peduncle that bends with the weight of the small, dark purple flower that is reminiscent of the Peruvian *M. cardiantha*. The sepaline tube is short and the sepaline tails are very slender and recurved. The petal is indistinctly callous along the labellar margin. The configuration of the lip varies from the "standard" for the subsection with the undulate margin near the middle below the marginal folds, and a pair of rounded calli on the hypochile near the middle.

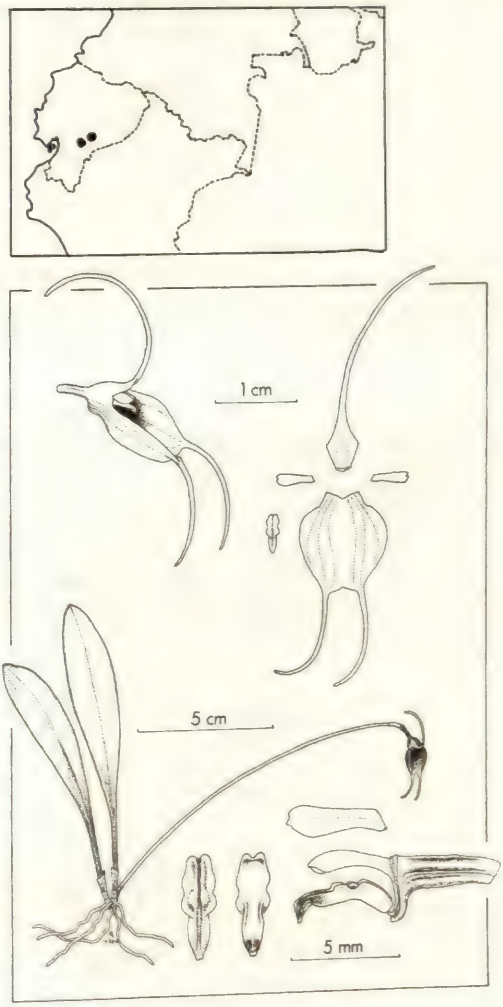



Plate 51. Masdevallia lenae

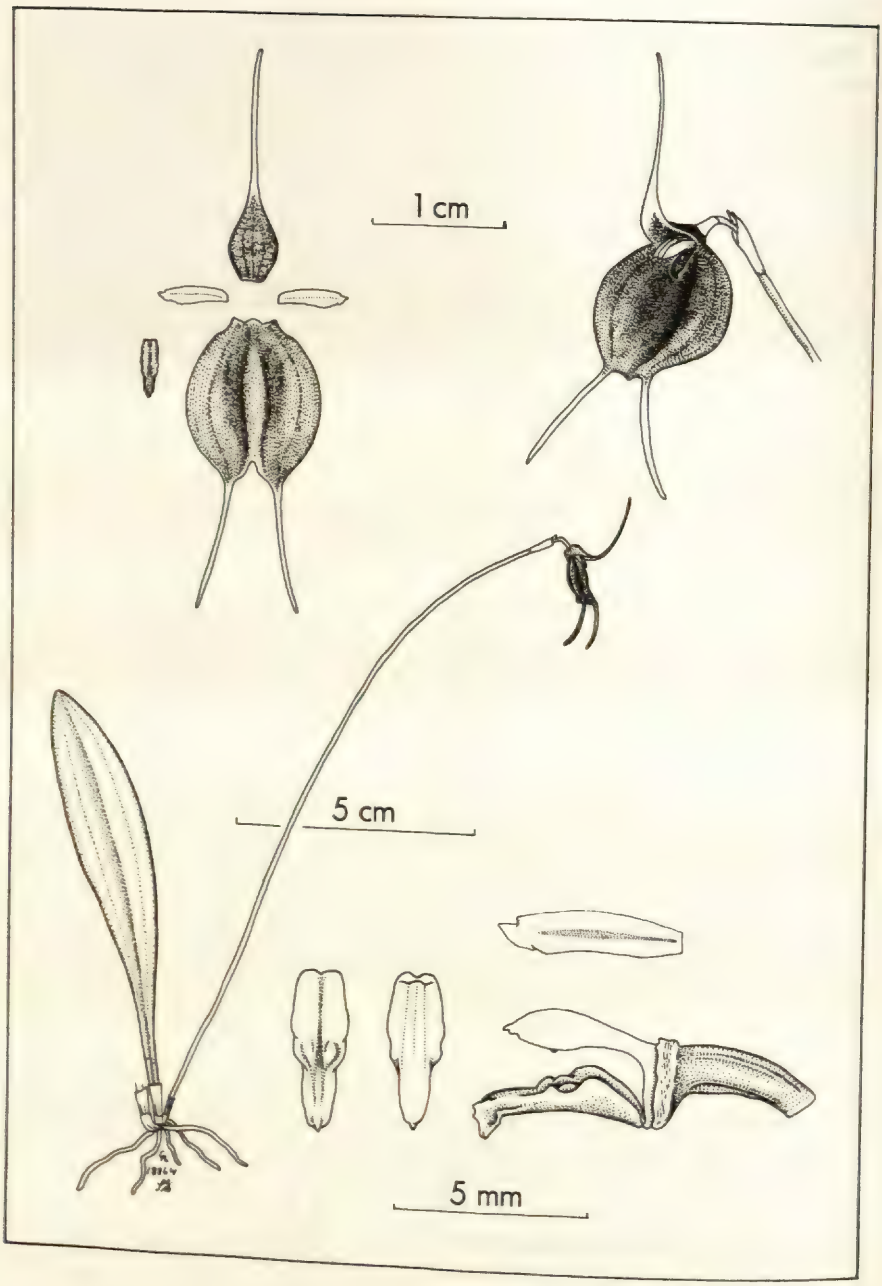



Plate 52. Masdevallia lenae

**Masdevallia lintricula** Königer, Die Orchidee 37: 106, 1986.

Ety.: From the Latin *lintricula*, "a little boat," referring to the cymbiform synsepal.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to obtuse, 5-15 cm long including the petiole 1-4 cm long, 1.7-3 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested raceme, 3 cm long or longer, decurved if the peduncle suberect, the peduncle stout, suberect to descending, triquetrous, 5-11 cm long, with a bract at the base, from low on the ramicaul; floral bracts 6-10 mm long, imbricating; pedicels 5-8 mm long; ovary 4-5 mm long; **sepals** rigid, fleshy, dark purple-brown, verrucose within, the dorsal sepal ovate, 25-32 mm long, 9 mm wide, connate to the lateral sepals for 8-10 mm to form a cylindrical, sepaline tube, the subacute apex triangular, gradually contracted into an antrorse tail ca. 15 mm long, the lateral sepals connate 22-30 mm into a suborbicular, bifid, concave lamina 24-33 mm long, 18-22 mm wide expanded, the apices obtuse, contracted into tails 1-3 mm long; **petals** ivory, diffusely dotted with purple, cartilaginous, oblong, obtuse, shortly apiculate, 7 mm long, 2-3 mm wide, with a low, longitudinal callus on the labellar half, ending in a short, erect, conical tooth at the base; **lip** purple, densely spotted with dark purple, oblong, subpandurate, 7-9 mm long, 3.5-5 mm wide, with tall, oblique, marginal folds above the middle, the epichile oblong, rounded, verrucose, denticulate, the hypochile oblong, subcordate with the lobes concave, hinged beneath; **column** white with the edge purple, semiterete, 7 mm long, the foot thick, 4 mm long, with a short, incurved extension.

PERU: **Amazonas**: Mendoza, near Omia, alt. 1300 m, *W. Königer, H. Königer, J. Meza et al. K-83a* (Holotype: M); same collection, cultivated by W. Königer in Munich, Germany, 29 Aug. 1984, *C. Luer 10423* (MO).

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest, Cordillera del Condor, alt. 1500 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11906* (MO); Cordillera del Cutucú, collected by M. Portilla, cultivated at Uzhupud, Gualaceo, 15 Feb. 1986, *C. Luer 11792* (MO).

This species, found uncommonly in southeastern Ecuador and neighboring Peru, is distinguished by the descending peduncle, similar to that of *M. descendens*. If the peduncle is in an erect position, the rachis will curve downward. Vegetatively, the petiole of the leaves is longer than that of most other related species.

The flower is rigidly fleshy with the tail of the dorsal sepal curving forward over the warty surfaces of the connate lateral sepals. The apices of the synsepal are obtuse and contracted into very short tails. The petals are oblong with the longitudinal callus ending in an erect, conical projection. The epichile of the lip is spiculate-verrucose.

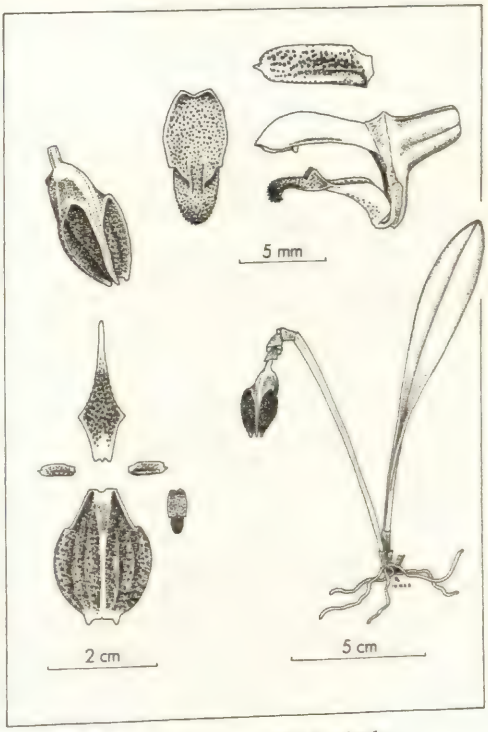



Plate 53. Masdevallia lintricula

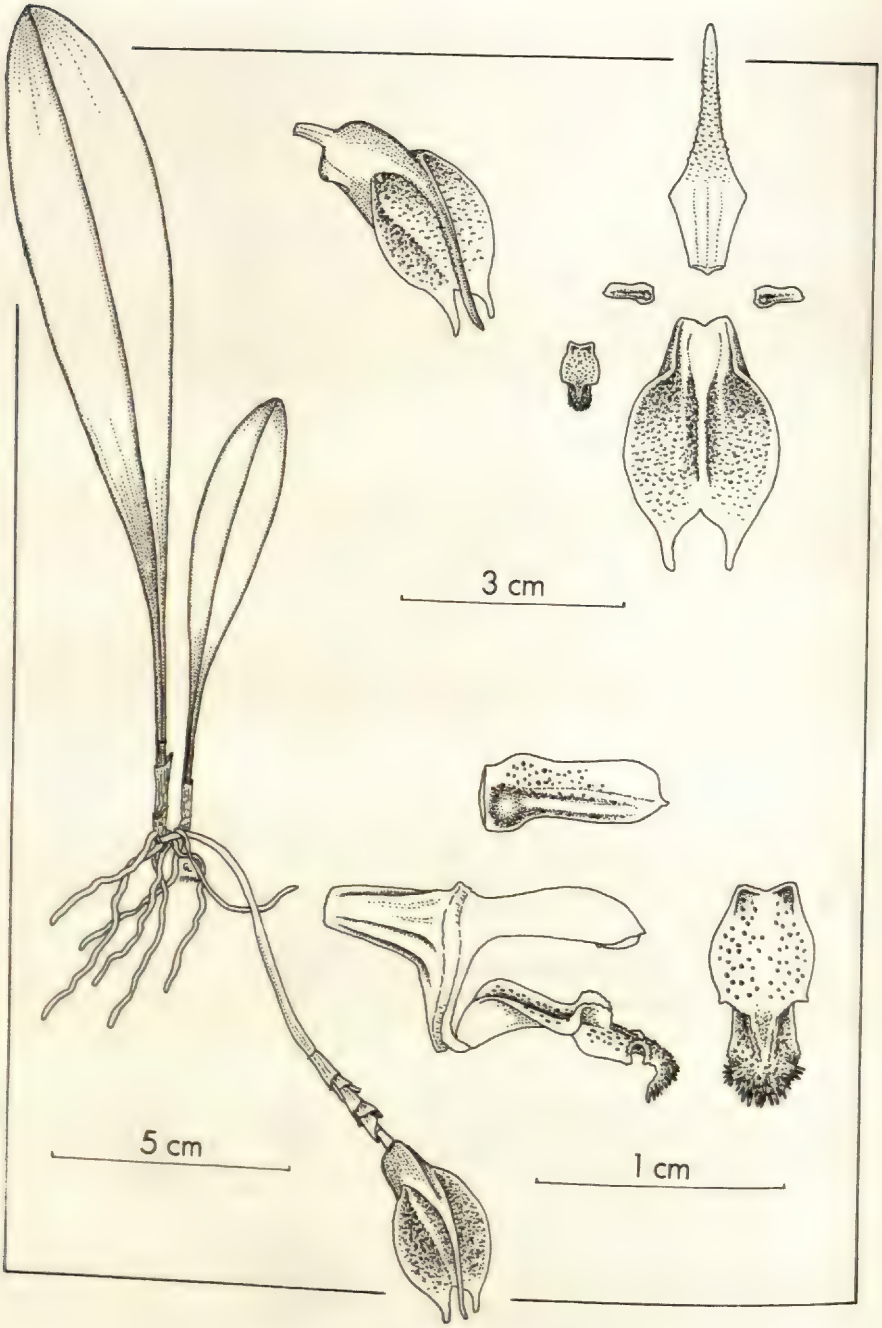



Plate 54. Masdevallia lintricula

**Masdevallia maculata** Klotzsch & H.Karst., Allg. Gartenzeitung 15: 330, 1847.

Ety.: From the Latin *maculatus*, "spotted," referring to a spot toward the base of the sepaline tube.

Syn.: *Masdevallia maculata* var. *flava* Hort. ex Stein, Orchideenb. 335, 1892.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 8-15 cm long including the petiole 1-2 cm long, the blade elliptical to narrowly elliptical, subacute to obtuse, 1.5-2.2 cm wide, narrowly cuneate below into the indistinctly petiolate base. **Inflorescence** a congested, successively several-flowered raceme 2-5 cm long, borne by an erect, triquetrous peduncle 12-18 cm long, with a basal bract, from near the base of a ramicaul; floral bracts thin, imbricating, 18-20 mm long; pedicels 20-22 mm long; ovary triquetrous, 5-6 mm long; **sepals** yellow or orange, to yellow suffused with purple toward the bases, microscopically verrucose within, the blade of the dorsal sepal obovate. 17-18 mm long, 9 mm wide, connate to the lateral sepals for 12 mm to form a funnel-shaped, sepaline tube, the subacute apex contracted into a slender, more or less erect tail ca. 3.5 cm long, the lateral sepals connate 22 mm to form an ovate synsepal 25-27 mm long, 18 mm wide, deflexed beyond the sepaline tube, with an acute, bifid apex, the tails approximate, slender, green, sometimes crossed, ca. 22 mm long; **petals** white, oblong-ovate, 6.5 mm long, 2.5 mm wide, the apex oblique, acute, the labellar half longitudinally callous; **lip** white, diffusely dotted with purple, oblong-subpandurate, 6.5 mm long, 2.5 mm wide, with minutely spiculate, marginal folds near the middle, the epichile obovate, obtuse to acute, minutely spiculate, the hypochile oblong, truncate, hinged below; **column** white, semiterete, 5 mm long, the foot 3 mm long with a short, incurved extension.

VENEZUELA: **Distrito Federal**: "Silla" near Caracas, alt. 8,000 ft., cultivated by Herr Reinecke for Herr Decker in Berlin, 1847, *H. Wagener 572* (Holotype: W; Isotype: K); near Caracas, *H. Wagener 349* (W); Caracas, Galigran, alt. 5,000 ft., June 1946, *L. Schlim 13* (K). **Aragua**: near Colonia Tovar, *Moritz* (W); near Colonia Tovar, 1854, *Fendler 1362* (AMES, BR, G, K, MO, P, W); near Colonia Tovar, *G.C.K. Dunsterville 277*; between Junquito and Tovar, alt. 1100-1400 m, 11 July 1959, *J. Renz 9521* (BAS); near Colonia Tovar, alt. 2000 m, 6 Dec. 1956, *J. Renz 8806* (BAS); Portachuelo, Peñita, alt. 1300-1500 m, 10 May 1966, *J.A. Steyermark 94782* (VEN). **Carabobo**: alt. 5,000 ft., 1846, *L. Schlim 578* (BR, G, K, W). **Lara**: arriba de Río Claro, alt. 1500 m, June 1976, *G.C.K. Dunsterville s.n.* (VEN); Doaca, collected by E. Torres, alt. ca. 1200 m, cultivated at Colomborquídeas, 22 Apr. 1988, *C. Luer 13262* (MO). **Zulia**: Sierra de Perijá, alt. 1160-1440 m, 30 Mar. 1972, *J.A. Steyermark & G.C.K. Dunsterville 106316* (VEN); between El Limón and El Junquito, alt. 4500 ft., 1961, *G.C.K. Dunsterville s.n.* (VEN). Without data, cultivated by W. Köniğer, 20 May 1980, *C. Luer 5263* (SEL). Without collection data, cultivated at St. Petersburg, Oct. 1889, as forma *lutea*, (type of var. *flava*: LE).

This species was first discovered near Caracas by Hermann Wagener, and living plants were sent to Europe where at least one flowered in the collection of Herr Decker in Berlin in 1847. It was described as *M. maculata* by Klotzsch and Karsten, the specific epithet referring to a "large spot" toward the base of the sepaline tube. Although the yellowish sepaline tube is often suffused with purple at the base, no distinct "spot" has been seen or recorded by any other author.

*Masdevallia maculata* is restricted to the coastal mountain range of Venezuela. It is variable in size, and variable in the relative lengths of the peduncle, and in the size and color of the flowers. The peduncles are longer or shorter than the leaves. The color of the flowers varies from yellow to orange with some suffusion with purple on the laterals. The sepaline tube is relatively short and more or less funnel-shaped with the blade of the synsepal rather acutely deflexed beyond the tube. The lateral sepals are deeply connate with the apices and short tails in apposition.

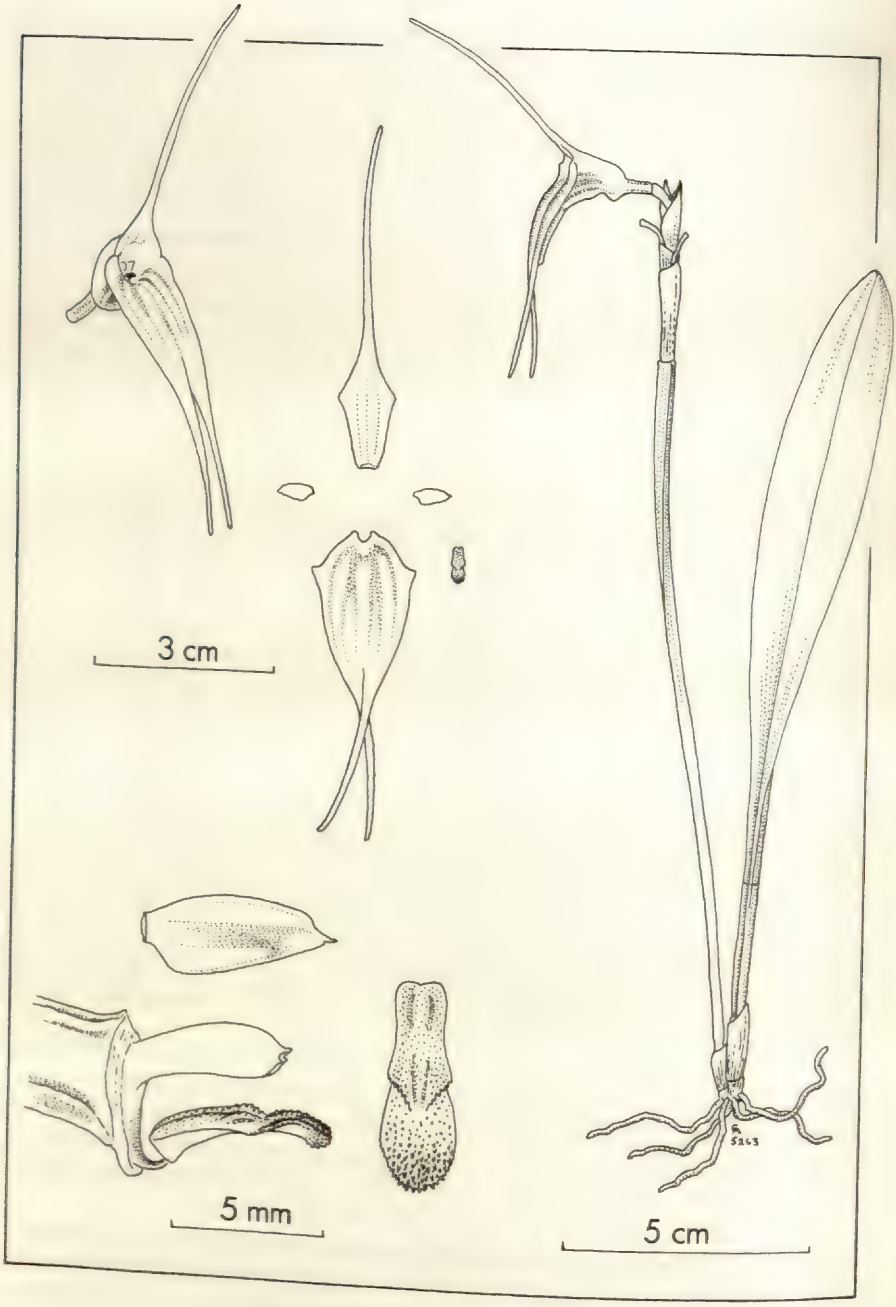


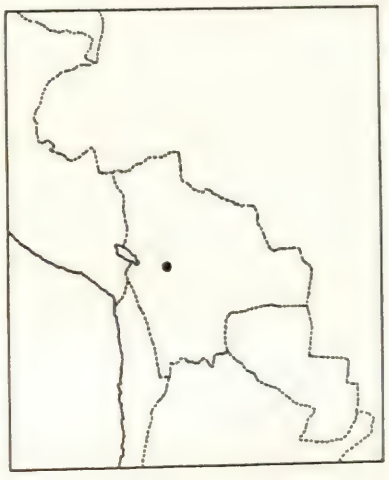

Plate 55. Masdevallia maculata

**Masdevallia martineae** Luer, Harvard Papers in Botany 2: 55, 1997.

Ety.: Named in honor of Martine Cloes of Hasselt, Belgium, co-collector of this species.

**Plant** medium in size, caespitose; roots fleshy. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, petiolate, 7-8 cm long including the petiole ca. 2 cm long, the blade obovate, subacute to obtuse, 1.5 cm wide in the dry state, the base gradually narrowed below into the petiole. **Inflorescence** a single flower followed by a second in a successive, congested raceme; peduncle erect, stout, sharply triquetrous, 7.5 cm long, from low on the ramicaul; floral bracts tubular, imbricating, inflated, 9 mm long, 6 mm wide; pedicels 8 mm long; ovary 3 mm long; **sepals** fleshy, yellow-green, striped in purple, glabrous, the dorsal sepal ovate, 10 mm long, 8.5 mm wide, connate to the lateral sepals for 9 mm to form a broad sepaline tube, the apex subacute, thickened into a semiterete tail ca. 5 mm long, 2-2.5 mm thick, the lateral sepals ovate, subacute, 10 mm long, 8 mm wide, connate 7 mm into a deep, secondary mentum, the apices subacute, contracted into thick tails 5 mm long; **petals** white, oblong, 7 mm long, 2.5 mm wide, with the apex rounded, slightly trilobulate, the labellar half slightly thickened longitudinally, ending in a rounded, retrorse callus at the base; **lip** oblong-pandurate, with acute, protruding, marginal folds above the middle, 8 mm long, 4 mm wide, the epichile triangular, subacute, with recurved margins, the hypochile oblong, spotted with red-purple, shallowly channeled, the base truncate, hinged on the end; **column** greenish white, semiterete, 7 mm long, the foot 3 mm long, with a short, incurved extension.

BOLIVIA: **La Paz**: Nor Yungas, forest near Coroico, alt. ca. 2000 m, Aug. 1995, cultivated in Hasselt, Belgium, Sept. 1996, *P. Cloes & M. Cloes 85/95037* (Holotype: MO).



Among the members of this subsection, *M. martineae* is most closely related to the numerous taxa grouped together presently under the name *M. bicolor*. Although similar in habit, it is distinguished from the latter by the yellow-green flowers striped in purple, a longer sepaline tube with the lateral sepals subacute and free beyond a relatively deep secondary mentum. They are not connate into a broad synsepal beyond the tube. The petals are narrowly oblong. The lateral folds of the lip protrude beyond the margins, and the epichile is triangular without verrucosities.

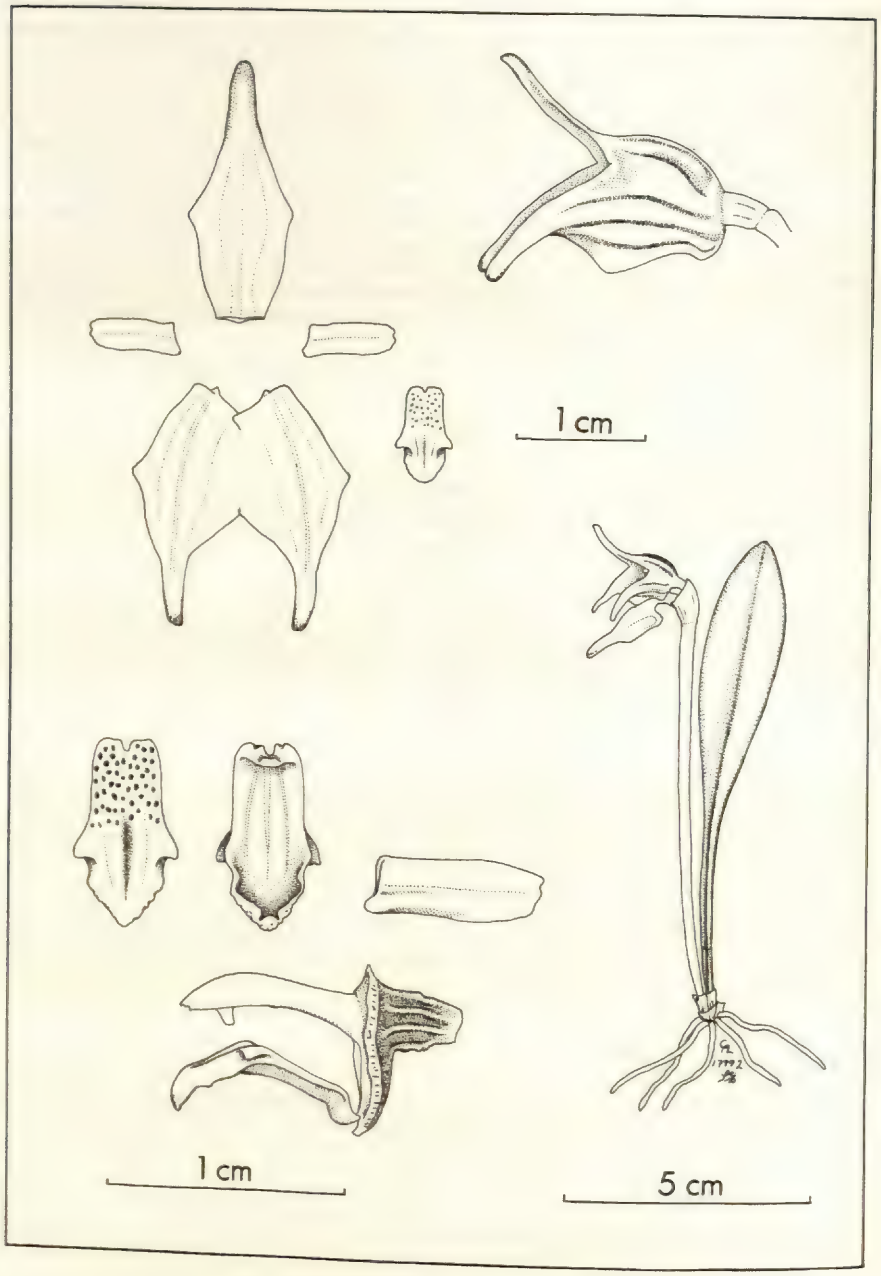


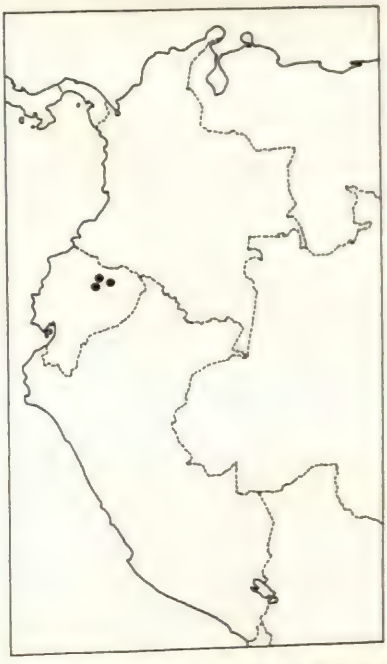

Plate 56. Masdevallia martineae

**Masdevallia martiniana** Luer, Monogr. Syst. Bot. 65: 108, 1998.

Ety.: Named in honor of Martin del Hierro, co-collector of this species.

**Plant** medium in size, caespitose; roots fleshy. Ramicauls stout, erect, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, obtuse, 10-15 cm long, 2-2.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a very congested raceme of successive flowers, borne by an erect triquetrous peduncle 20-25 cm long, with a bract near the base of a ramicaul; floral bracts imbricating, 10 mm long; pedicel 10 mm long; ovary 4 mm long; **sepals** light green, glabrous, the dorsal sepal obovate, 18-20 mm long, 9 mm wide, connate to the lateral sepals for 12 mm to form a campanulate, sepaline tube, the apex subacute, acuminate into a slender, erect, green tail ca. 35 mm long, the lateral sepals light green suffused with pale rose centrally and along veins centrally, connate 33 mm into an oblong, bifid synsepal, 35-45 mm long, 20-23 mm wide, with the apices triangular, acute; **petals** green, cartilaginous, oblong, 7 mm long, 2.5 mm wide, the apex obscurely tridentate, with a low, longitudinal callus within the labellar margin, ending in an low, rounded callus above the base; **lip** dull white, covered with minute purple dots, oblong-subpandurate, 7 mm long, 3 mm wide, with the margins incurved above the middle, the disc with a pair of folds within the margin above the middle, the apex rounded, convex, minutely verrucose, the base thick, subcordate, hinged beneath to the column-foot; **column** semiterete, 5 mm long, the foot equally long including a thick, incurved extension.

ECUADOR: **Sucumbíos**: Lago Imuya, epiphytic in a tree overhanging the water, alt. 230 m, Aug. 1995, collected by Martin and Juán del Hierro, cultivated by Juán del Hierro in Quito, 15 Feb. 1998, *C. Luer 18702* (Holotype: MO). **Napo**: Aguarico, Reserva Etnica Huaorani, near Río Yasuní, alt. 230 m, 19 Mar. 1994, *Milton Aulestia 1887* (MO, QCNE); Parqué Nacional Yasuní, lagunas de Garza Cocha, alt. 200 m, 22 Sept. 1988, *C.E. Cerón & N. Gallo 4940* (MO, QCNE).



This species occurs in the hot lowlands of Amazonian Ecuador, usually found growing on limbs of trees overhanging water. Among the species of the subsection, this species is distinguished by the large, light green flowers with a pale rose suffusion on the deeply connate synsepal. The apices are triangular and acute, noncaudate. The petals are oblong. The lip is subpandurate with a pair of folds just within the margins at the constriction above the middle. The apex is rounded, convex, and minutely verrucose.

*Masdevallia martiniana* is superficially similar to *M. vargasii*, found in the lowlands of Ecuador to Bolivia and Brazil, but not at the very low altitude of less than 300 meters above sea level. The latter is distinguished by short, sepaline tails and a proportionately larger, non-pandurate lip.

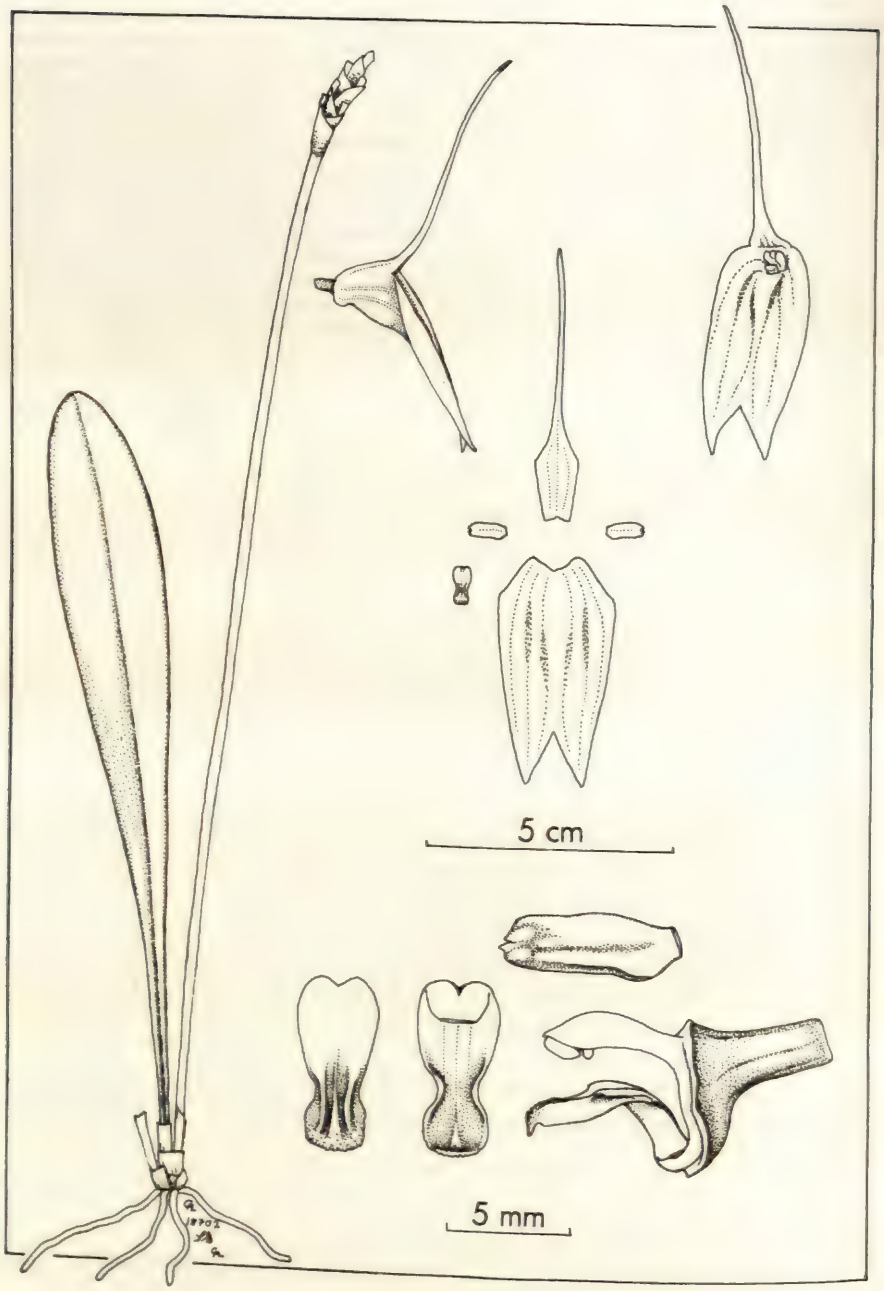


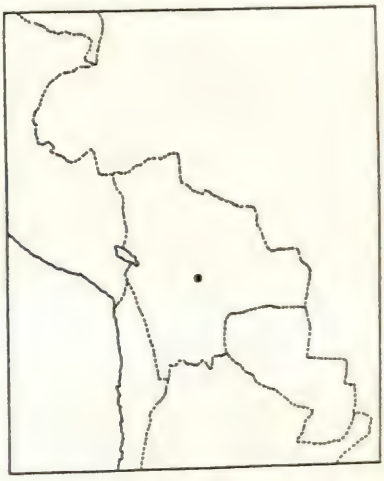

Plate 57. Masdevallia martiniana

**Masdevallia mascarata** Luer & Vásquez, Novon 2: 6, 1992.

Ety.: From the Greek *maskaratos*, "masked," in allusion to the confusing identity.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 0.5-1.5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, subpetiolate, 3-7.5 cm long including the petiole 0.5-1.5 cm long, the blade narrowly elliptical, subacute, 0.8-1.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, produced successively in a loose, few-flowered raceme, borne by a suberect, ascending to horizontal, triquetrous peduncle, up to 5 cm long including the peduncle 1.5-3 cm long, with a bract at the base, from the base of a ramicaul; floral bract 5-7 mm long; pedicel 7-13 mm long; ovary 2-3.5 mm long; **sepals** yellow, microscopically sparsely pubescent within, the dorsal sepal obovate, 7-8 mm long, 4-6 mm wide, connate to the lateral sepals for 4.5-6 mm to form a short, sepaline tube, the apex broadly obtuse, contracted into an erect, stout, yellow tail 12-23 mm long, the lateral sepals diffusely dotted with red-purple, coalescing toward the base, suffused with red-purple externally, 12-20 mm long, connate 10-17 mm into an ovate, bifid lamina 10-16 mm wide, the apices acute, contracted into subapproximate, slender tails 6-9 mm long; **petals** yellow, oblong, 5-6 mm long, 1.5 mm wide, the apex subtruncate, obscurely bilobulate, the labellar half longitudinally thickened ending in a low, rounded callus above the base; **lip** yellow, dotted with purple, oblong-subpandurate, 4.5-5 mm long, 1.5-2.25 mm wide, with oblique marginal folds above the middle, the apical portion broadly ovate, obtuse, minutely subverrucose and erose, the lower portion oblong, the disc shallowly channeled, the base truncate, thick and deep, presenting a flat, subquadrate surface on the end, hinged beneath; **column** yellow, stout, semiterete, 4-5 mm long, with a foot 2-3 mm long including a short extension.

BOLIVIA: **Santa Cruz**: epiphytic in moist forest south of Yapacaní, alt. 650 m, 7 Sept. 1991, *C. Luer, J. Luer, L. Moreno & D. Ric 15402* (Holotype: MO; Isotypes: AMES, LPB); near Santa Cruz without specific locality, collected by L. Moreno, cultivated by Springdale Orchids, Cincinnati, OH, cultivated by Hoosier Orchids, Indianapolis, IN, July 1991, *C. Luer 15506* (MO).



This species occurs in the warm, moist lowlands of central Bolivia. Although it appears deceptively similar to *M. zahlbruckneri*, known to occur farther west in central Bolivia, it is more similar to *M. sanctae-fidei*, known only from the lower altitudes in the Eastern Cordillera of Colombia and adjacent Venezuela.

The most distinguishing feature of *M. mascarata* is the very short, erect, triquetrous peduncle. The greenish yellow, purple-dotted flowers are superficially similar to those of *M. zahlbruckneri* of subgenus *Masdevallia* which are borne by a more or less creeping, terete peduncle.

The petals of *M. mascarata* are longitudinally callous with a low, basal swelling, and the lip is plicate above the middle. The callus of the petals of *M. zahlbruckneri* end in retrorse processes, and the lip is oblong with a pair of low, longitudinal carinae.

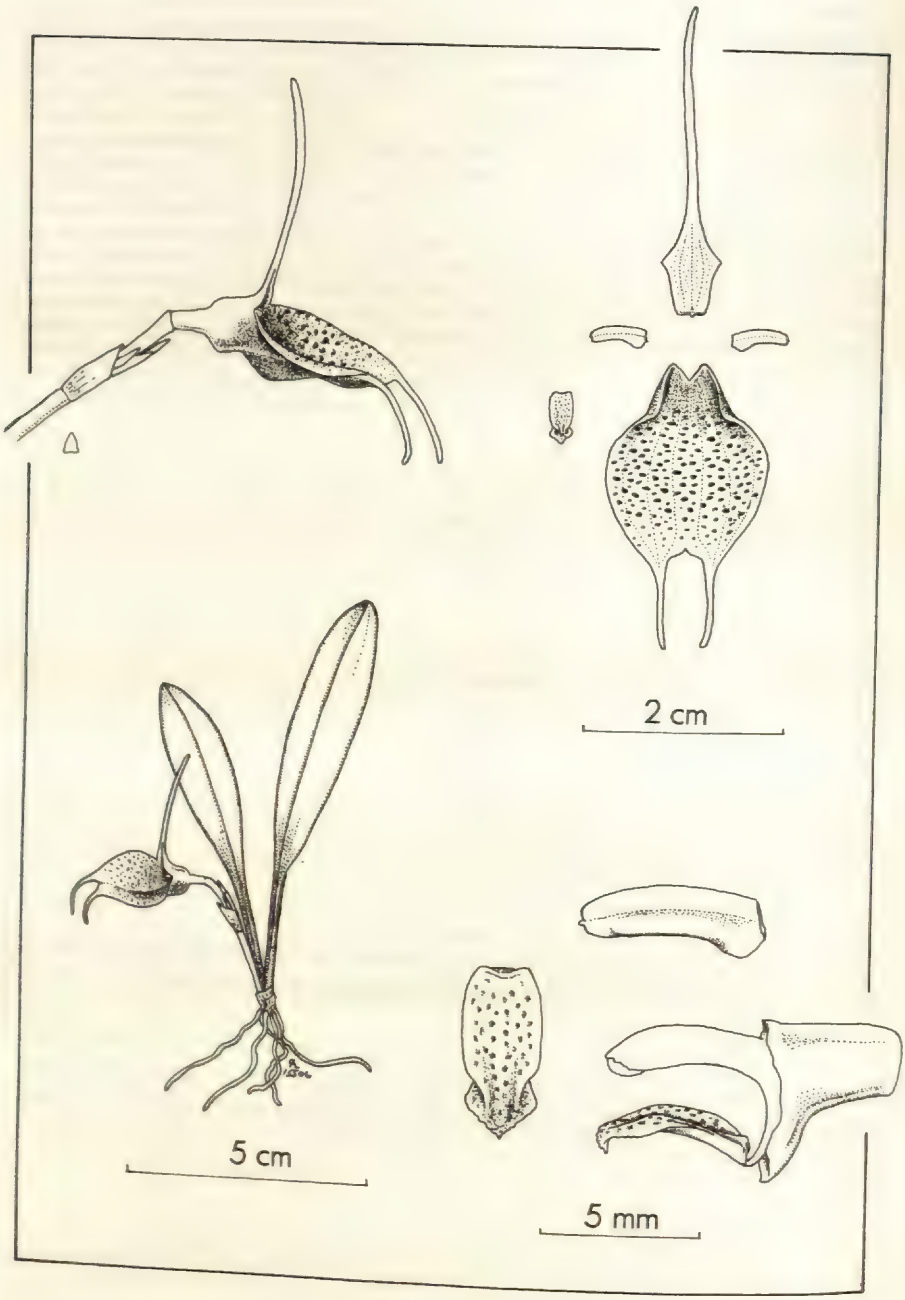


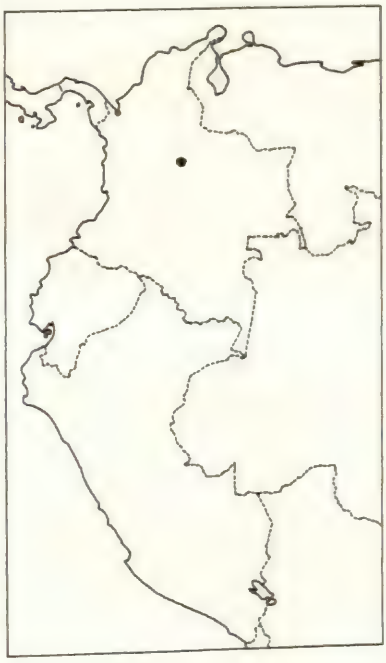

Plate 58. Masdevallia mascarata

**Masdevallia medusa** Luer & Escobar, Selbyana 7: 72, 1982.

Ety.: Named for the numerous, long, entangled, sepaline tails that project from the congested raceme suggesting the locks of hair of the Greek mythological Medusa.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 10-20 cm long including the petiole 3-4 cm long, the blade elliptical, obtuse, 2-3.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a dense to sublax, simultaneously flowered raceme up to 7 cm long, of 2-6 long-pedicellate flowers, borne by a stout, triquetrous peduncle 18-40 cm long, with a bract at the base of the ramicaul; floral bracts thin, imbricating, oblique, 10-18 mm long; pedicel 2-6.5 cm long; ovary green, 3-angled, 4 mm long; **sepals** yellow to yellow-green, the laterals broadly suffused or densely mottled with purple in the middle portion, minutely verrucose, the dorsal sepal ovate, 12 mm long, 8-10 mm wide, connate to the lateral sepals for 5-6 mm to form a short, gaping, sepaline cup, the free portion triangular with revolute margins, the subacute apex contracted into a slender, orange tail 3.5-5 cm long, the lateral sepals oblong, oblique, with revolute margins, 12-15 mm long, 9-10 mm wide, connate basally for 2-4 mm, the subacute apices contracted into yellow-orange tails 2-5 cm long; **petals** white, 6 mm long, 1.5-2 mm wide, the apex obtuse, minutely apiculate, the labellar margin with a low, longitudinal callus, more or less thicker toward the base; **lip** cream, diffusely dotted or speckled with red-purple, oblong-subpandurate, 6.5 mm long, 2.75 mm wide, with obtuse marginal folds near the middle, the epichile ovate, subacute, shortly acuminate with a keel beneath, minutely verrucose, the hypochile oblong, subtruncate at the base, hinged beneath; **column** white, suffused with purple, semiterete, 6.5 mm long, the foot 4 mm long with an incurved extension.

COLOMBIA: **Boyacá**: epiphytic in scrub cloud forest, Páramo de la Rusia, alt. 3360 m, 1 June 1982, *C. Luer, R. Escobar & D. Portillo 8025* (Holotype: SEL; Isotype: JAUM); same area, 26 Aug. 1977, *R. Escobar et al. 1840* (JAUM).



This robust species is locally abundant in a scrub cloud forest in the Eastern Cordillera of Colombia where it grows intermixed with the superficially similar *M. sceptrum*. Although the latter is relatively frequent and widely distributed in the Eastern Cordillera, *M. medusa* is apparently very limited in distribution, known only from one small area of forested páramo where it was first discovered in 1977 by Rodrigo Escobar.

*Masdevallia medusa* differs from *M. sceptrum* in the considerably longer pedicels, and shortly connate sepals with more or less revolute margins. The sepals of the latter are connate into a sepaline tube and without revolute, free margins. The petals and lip of the two species are very similar.

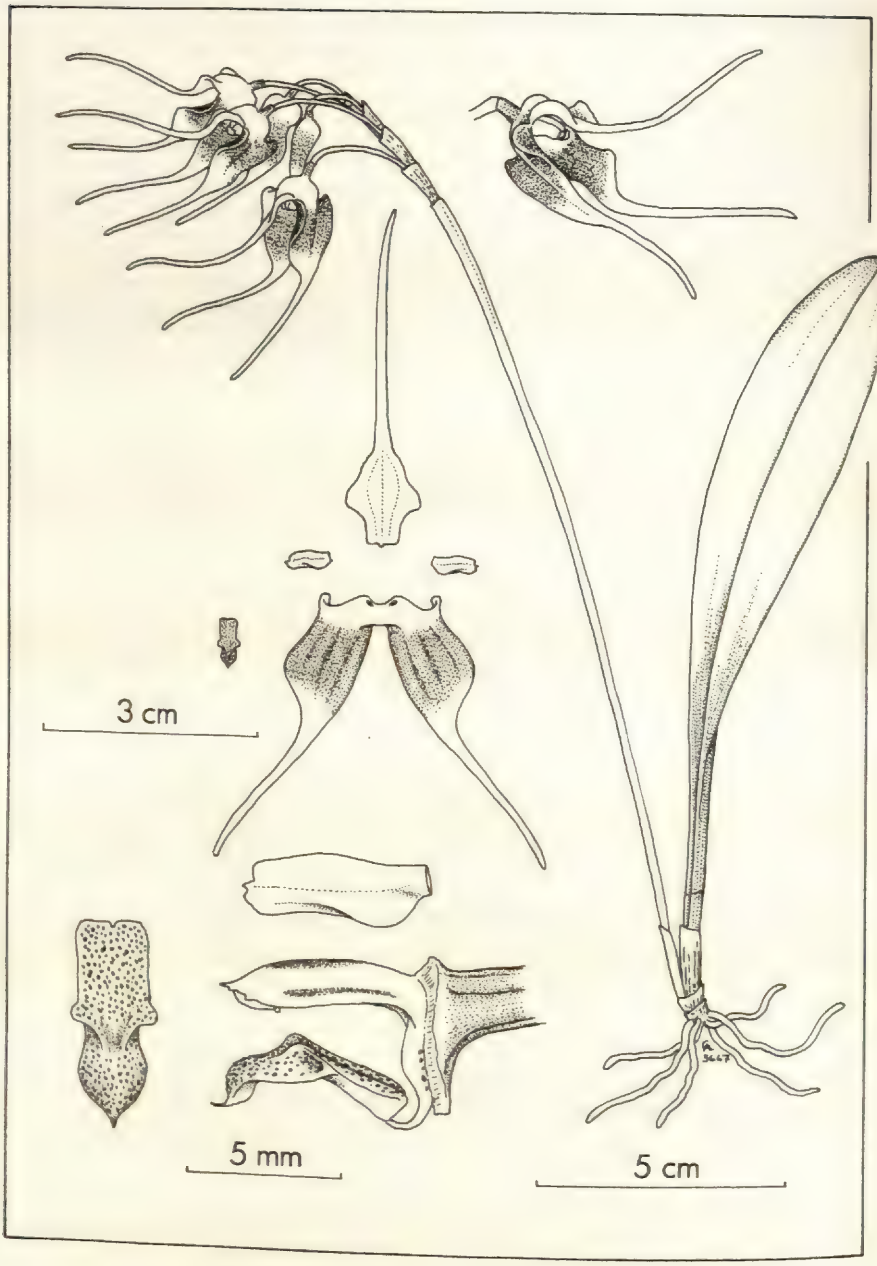



Plate 59. Masdevallia medusa

**Masdevallia melanoxantha** Linden & Rchb.f., Bonplandia 2: 283, 1854.

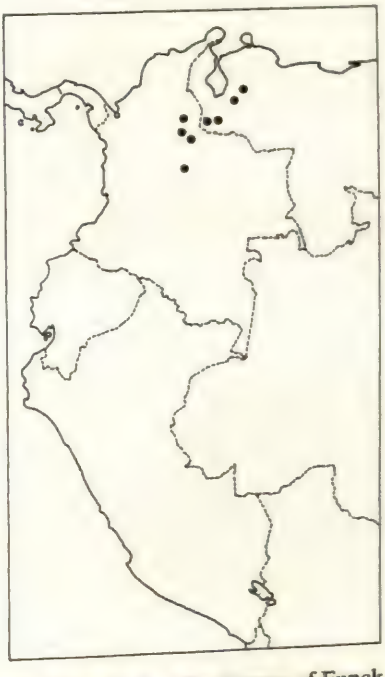
Ety.: From the Greek *melanoxanthos*, "dark yellow," referring to the color of the flower.

Syn.: *Masdevallia asperrima* Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 133, 1922.

Ety.: From the Latin *asperrimus*, "very asperate," referring to the minutely verrucose synsepal.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 10-17 cm long including the petiole 2-4 cm long, the blade elliptical, subacute to obtuse, 2-3 cm wide, narrowly cuneate below into the stout petiole. **Inflorescence** a congested, successively several-flowered raceme up to 5 cm long, borne by a slender, erect, triquetrous peduncle, 20-30 cm long, with a bract at the base, from low on the ramicaul; floral bracts tubular, imbricating, 15-20 mm long; pedicel 10-15 mm long; ovary 4 mm long; **sepals** fleshy, rigid, the dorsal sepal yellow or yellow-green, suffused with purple and microscopically verrucose within, glabrous externally, ovate, 45 mm long including the narrowly triangular apex with tail, 8 mm wide, connate to the lateral sepals for 6 mm to form a short, cylindrical, sepaline tube, the lateral sepals dark purple, minutely verrucose within, connate 25 mm into an ovate-oblong lamina with recurved sides, bifid at the acute apex into triangular apices ca. 5 mm long, 40 mm long, 14 mm wide, yellow and concave at the base; **petals** yellow, oblong, 6 mm long, 2 mm wide, both halves longitudinally callous, with the apex truncate, apiculate; **lip** light yellow, flecked with purple, thick, cartilaginous, 5.5 mm long, 2.5 mm wide, with erect, fin-like, verrucose, marginal folds near the middle, shallowly sulcate between, the epichile oblong with the apex thick, rounded, decurved, verrucose, the hypochile oblong, subtruncate, hinged beneath; **column** white with purple margins, semiterete, 5 mm long, the foot 3 mm long with an incurved extension.

COLOMBIA: **Norte de Santander**: near Ocaña, Aspasica, alt. 5,000 ft., 1847, *L. Schlim 1166* (Holotype: W); Aspisica, alt. 1600 m, 1851, *L. Schlim 1005, 1021* (K); Pamplona, *Arnold 82* (W); Ocaña, *H. Wagener s.n.* (W); near Paramito, alt. 2800 m, *Kalbreyer 757* (holotype of *M. asperrima*, destroyed at B). **Santander**: near Alto de Santa Inés, alt. 2050 m, 23 May 1982, *C. Luer, R. Escobar & D. Portillo 7933* (SEL); same collection, cultivated at Colomborquídeas, 29 Apr. 1984, *C. Luer 7933* (MO). **Boyacá**: Santa Maria, Macanal, Río Batá, alt. 1400 m, 15 Sept. 1960, *H. Schmidt-Mumm 18* (COL).
VENEZUELA: **Lara**: Jiménez, between Sanare and El Volcán, alt. 1700 m, 17 Oct. 1958, *J. Renz 9194* (BAS); Parqué Nac. de Yacambí, alt. 1650 m, 8 Aug. 1970, *J.A. Steyermark, G.C.K. Dunsterville et al. 104060* (VEN); near Parqué Nac. Yacambí, alt. 1600 m, Aug. 1977, *G.C.K. Dunsterville s.n.* (VEN). **Táchira**: without specific locality, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13282* (MO); north of San Cristóbal, alt. 1300 m, 2 Nov. 1959, *J. Renz 1959* (BAS); Cerro de la Mina cerca Sta. Ana, alt. 1400 m, June 1975, *G.C.K. Dunsterville s.n.* (VEN); Uribante, between La Siberia and Las Cuevas Represa, alt. 1100 m, 8 July 1983, *Van Der Werff & A. Gonzáles 5121* (MO, VEN). Without collection data, cultivated by J & L Orchids, Easton, CT, 10 Nov. 1977, *C. Luer 2141* (SEL).



This species is one of the many discoveries made during the voyage of Funck and Schlim between 1846 and 1852. It is apparently endemic in the northern part of the Eastern Cordillera of Colombia and adjacent Venezuela. It is distinguished by the thickly coriaceous leaves far exceeded in length by a slender, triquetrous peduncle that bears a succession of rigidly fleshy, bilabiate flowers. From the short, sepaline tube, the greenish dorsal sepal ends in an erect, narrowly triangular, purple-suffused tail, while the dark purple, velvety (microscopically spiculate-verrucose) synsepal ends in a pair of acute, approximate apices. An erect, verrucose pair of fin-like callous folds demarcate the two halves of the thick lip.

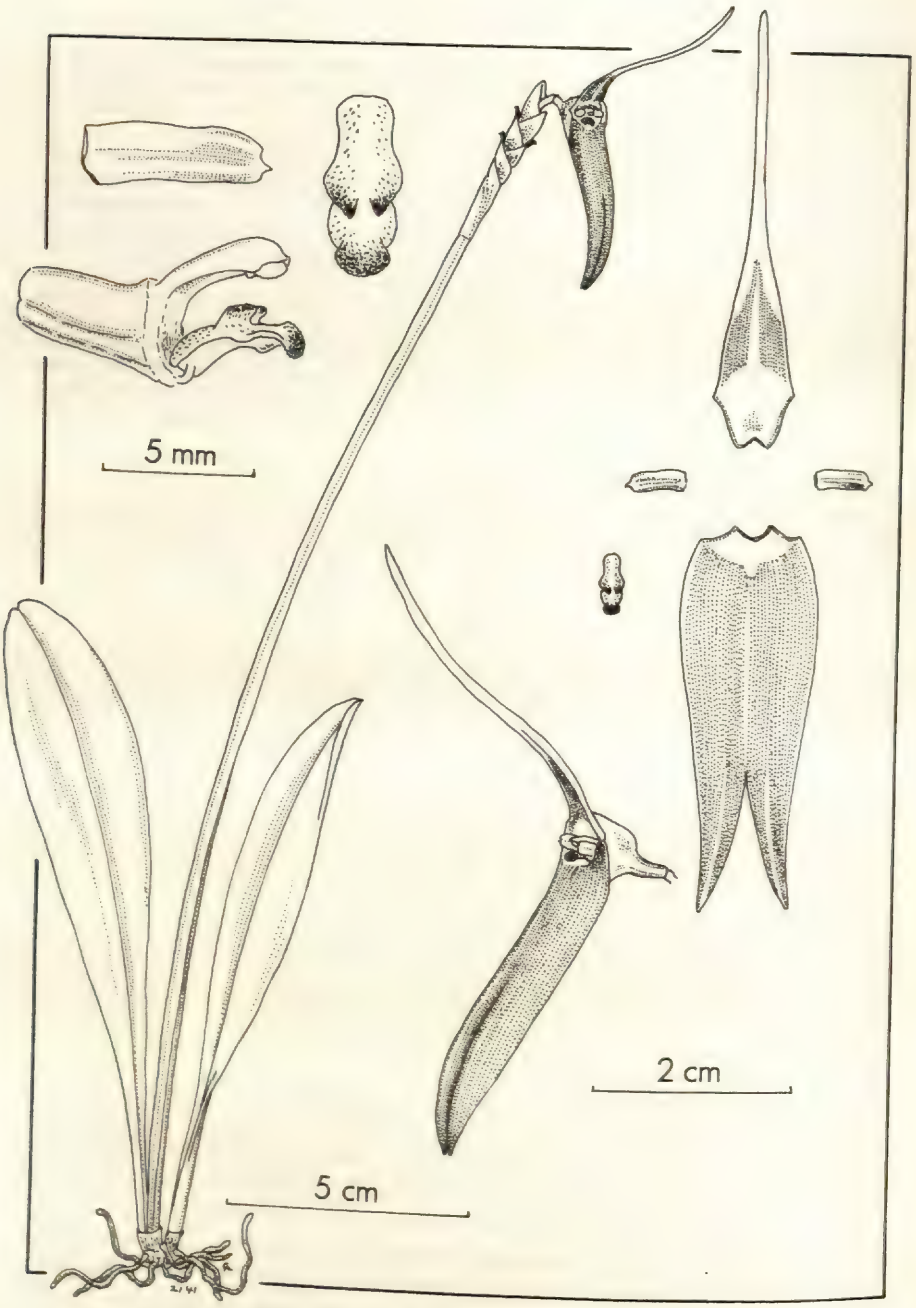



Plate 60. Masdevallia melanoxantha

**Masdevallia mezae** Luer, Phytologia 44: 166, 1979.

Ety.: Named in honor of Jorge B. Meza Torres of Lima, Peru, who collected this species.

Syn.: *Masdevallia rauhii* Sengh. & Braas, Die Orchidee 30: 192, 1979.
Ety. Named in honor of Dr. Werner Rauh of the Heidelberg Botanical Garden who collected this species.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-6.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, 9-20 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, acute, 1.5-2.5 cm wide, gradually narrowed below into the indistinctly petiolate base. **Inflorescence** a congested, successively several- to many-flowered raceme up to 8 cm long, 2-3 flowers produced simultaneously, borne by a slender, erect, triquetrous peduncle, 12-18 cm long, with a bract at the base, from low on the ramicaul; floral bracts tubular, imbricating, 15-20 mm long; pedicel 15-25 mm long; ovary 4-5 mm long; **sepals** yellow-green, minutely dotted with purple, glabrous externally, minutely verrucose within, the dorsal sepal elliptical, ca. 8 mm long, 6 mm wide, connate to the lateral sepals for 5 mm to form a short, cylindrical, sepaline tube, the apex triangular, acute, contracted into a slender, erect, orangish tail 2.5-3.5 cm long, the lateral sepals oblong, oblique, 12 mm long, 5 mm wide, connate 6 mm, with the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, subacute, 5.5 mm long, 1.5 mm wide, the labellar half with a longitudinal callus ending in a rounded swelling above the base; **lip** white, dotted with purple, oblong-subpanduriform, 6 mm long, 1.5-2 mm wide, with obtuse, marginal folds near the middle, shallowly sulcate between, the epichile ovate, obtuse with serrulate margins, with a central minutely verrucose callus, the hypochile oblong, truncate, hinged beneath; **column** yellow-white, suffused with rose, semiterete, 5 mm long, the foot 2.5 mm long with an incurved extension.

PERU: **Amazonas**: epiphytic between Chachapoyas and Pomacochas, alt. 2000 m, Nov. 1974, collected by J. Meza, cultivated by J & L Orchids, Easton, CT, 8 Nov. 1977, *C. Luer 2126* (Holotype: SEL); same collection, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13235* (MO); Pomacochas, near Ingenio, alt. 2000 m, *W. Rauh 38601* (holotype of *M. rauhii*: HEID; isotype: AMES); Bongará, near Pomacochas, alt. 2000 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle, J. Meza et al. K-3e* (K, M, SEL, W, Herb. H. Königer); without locality, 10 July 1967, *D. Bennett 596* (SEL).

First discovered in 1967 by David Bennett of Lima, Peru, and painted by Pastorelli, *M. mezae* was described from a plant collected and exported in 1974 by Jorge Meza to J & L Orchids of Easton, CT. Another collection by Dr. Werner Rauh was described nearly simultaneously as *M. rauhii*.

*Masdevallia mezae* is similar to *M. cinnamomea*, but the former is distinguished by a continually flowering and lengthening, congested raceme, sometimes with two to three flowers open simultaneously, instead of only two to four nearly simultaneous flowers. The smaller, shorter-tailed flowers of *M. mezae* are yellow-green instead of diffusely dotted brown. The apices of the lateral sepals are acute and acuminate into tails. The longer lateral sepals of *M. cinnamomea* are gradually attenuate without an apparent junction between blade and tail.

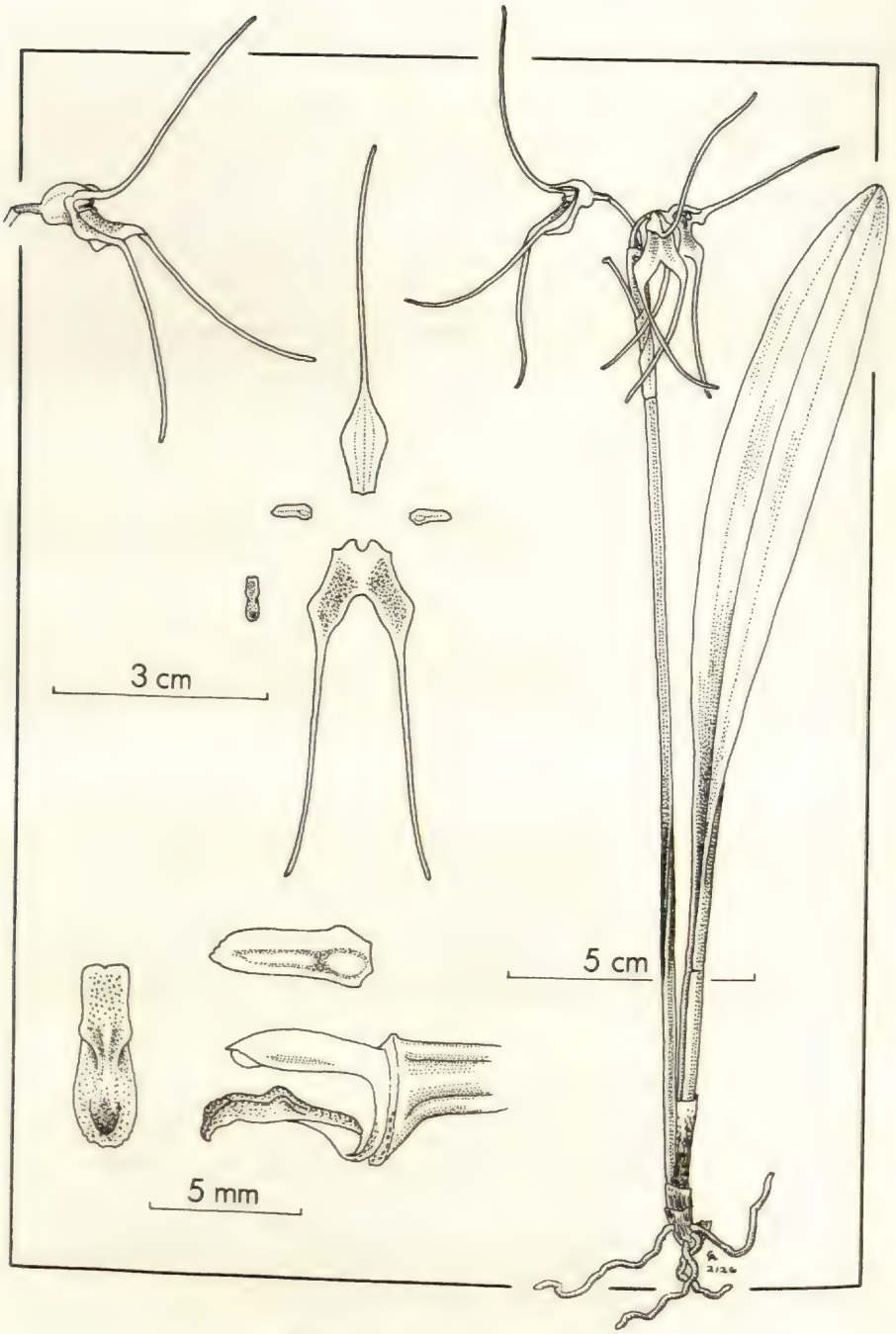



Plate 61. Masdevallia mezae

**Masdevallia monogona** Königer, Die Orchidee 36: 82, 1985.

Ety.: From the Greek *monogonia*, "a single angle," referring to the cross section of the peduncle.

**Plant** medium in size, terrestrial, presumably also epiphytic, caespitose; roots slender. Ramicauls stout, erect, 2.5-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 8-16 cm long including the indistinct petiole 1.5-2 cm long, the blade narrowly elliptical-obovate, subacute, 1.5-2 cm wide, gradually narrowed below to the base. **Inflorescence** a congested, successively few-flowered raceme borne by an erect peduncle 4.5-6.5 cm long, round in cross section with a bract below the middle, to a single longitudinal angle on the abaxial margin above the middle, 4 mm deep near the raceme, from low on the ramicaul; floral bracts thin, imbricating, acuminate, 15-18 mm long; pedicel 8-9 mm long; ovary 6-7 mm long; **sepals** fleshy, minutely short-pubescent within, the dorsal sepal yellow, obovate, concave, 12 mm long, 13 mm wide expanded, connate to the lateral sepals for 6 mm to form a short, broad, cylindrical tube, the apex obtuse, contracted into an erect, thick, subclavate tail 23 mm long, the lateral sepals yellow, suffused with red-purple above the middle, connate 16 mm into a transverse lamina 18 mm long, 22 mm wide expanded, with a prominent, rounded chin below the column-foot, the rounded apices contracted into thickened tails 16 mm long; **petals** white, oblong, 8 mm long, 2 mm wide, the apex subtruncate, shallowly notched, the labellar margin with a longitudinal callus terminating above the base in a rounded swelling; **lip** white, heavily dotted with red-purple, oblong-subpandurate, constricted above erect, marginal angles above the middle, 6.5 mm long, 3 mm wide, the apex obtuse, lightly verrucose, with revolute, minutely erose margins, the disc shallowly channeled, the base subcordate, hinged beneath; **column** white, semiterete, 6.5 mm long, the foot 5 mm long with a short, incurved extension.

PERU: **Amazonas**: Prov. of Bongará, near Pomacochas, alt. 2000 m, Aug. 1979, *W. Königer, H. Königer et al. K-28d* (Holotype: M); cultivated by W. Königer in Munich, Germany, 12 Sept. 1981, *C. Luer 6496* (SEL).

This rare species is known from a single plant collected near Pomacochas by the Königers in 1979. A division of the plant was used as the parent of a seeding population in cultivation. Florally *M. monogona* agrees with subgenus *Polyantha*, but to which of the two sections is questionable. The peduncle is neither strongly triquetrous nor terete. Instead, the short peduncle is round below the middle, becoming sharply longitudinally one-angled above the middle on the abaxial surface (the surface opposite the lip), aligning it better with subsection *Alaticaules*. The tails of the sepals are slightly thickened toward the apex. The petals and lip are basically similar to those of other members of the subsection.

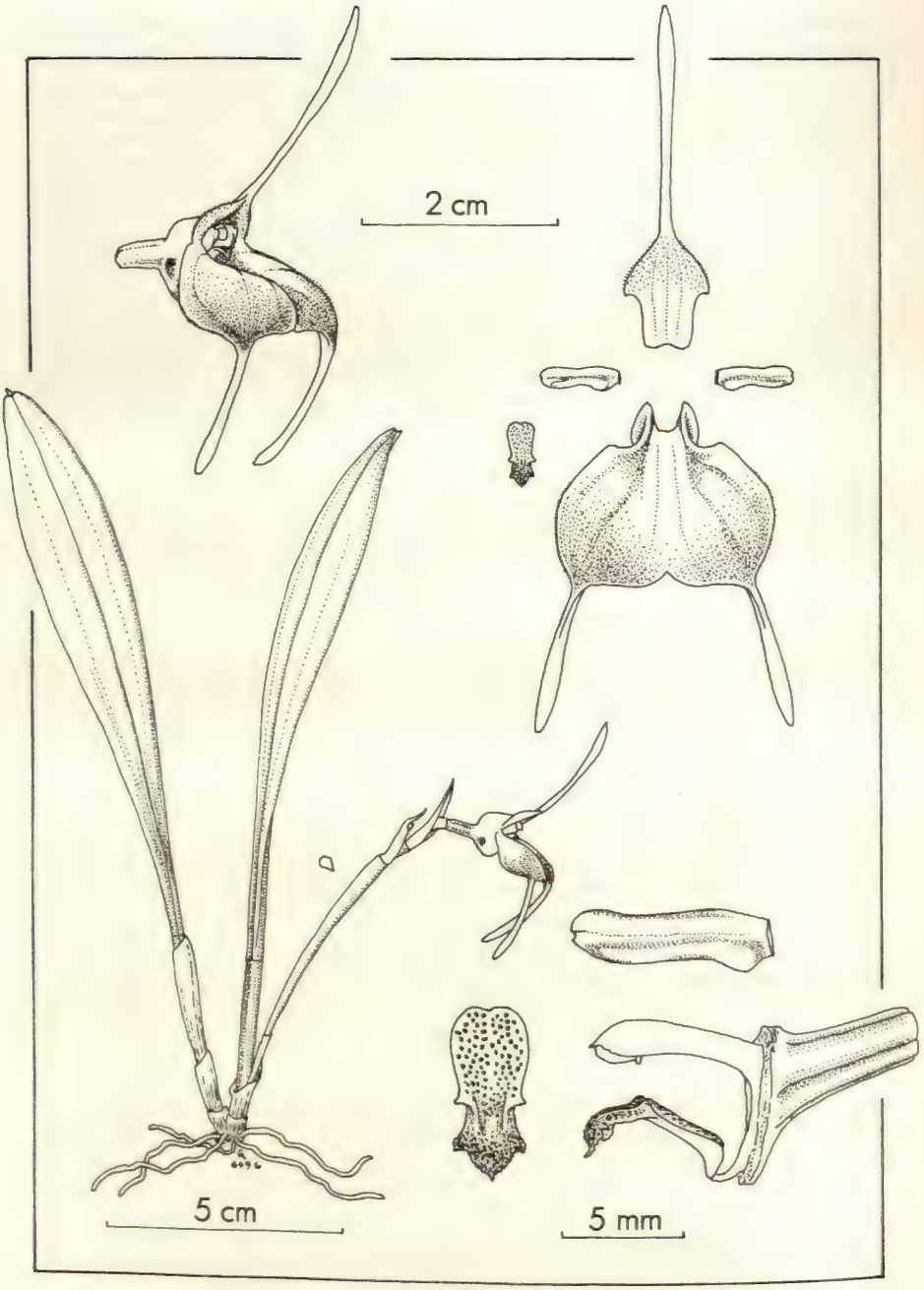



Plate 62. Masdevallia monogona

**Masdevallia navicularis** Garay & Dunst., Venezuelan Orchids Illustr. 6: 232, 1976.

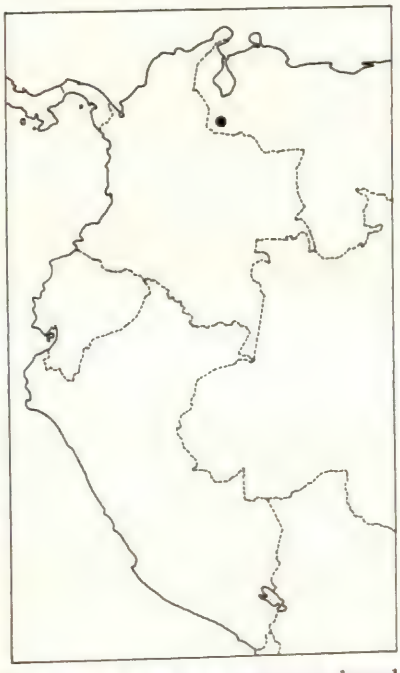
Ety.: From the Latin *navicularis*, "boat-shaped," referring to the shape of the synsepal.

Syn.: *Masdevallia scapha* Braas, Die Orchidee 33: 148, 1982.

Ety.: From the Greek *scaphe*, "a boat," referring to the shape of the synsepal.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 10-25 cm long including the petiole 2-4 cm long, the blade elliptical to narrowly elliptical, subacute to obtuse, 3-4.5 cm wide, cuneate below into the petiolate base. **Inflorescence** a congested, successively several- to many-flowered raceme up to 10 cm long, borne by a suberect, triquetrous peduncle 12-25 cm long, with a basal bract, from near the base of a ramicaul; floral bracts thin, imbricating, 10-15 mm long; pedicels 10-25 mm long; ovary 5 mm long; **sepals** purple-brown, yellow toward the bases, thick, rigid, coarsely rugose-verrucose within, the dorsal sepal triangular-ovate, acute, arching over the lateral sepals with the apices of all 3 sepals connivent, 30-40 mm long, 9 mm wide, connate basally to the lateral sepals for 5 mm to form a short tube, the lateral sepals connate for about 18 mm into a concave, ovate, subacute synsepal 30 mm long, 20-25 mm wide expanded; **petals** white, oblong, 6 mm long, 2 mm wide, the apex obtuse, shallowly notched, the labellar half longitudinally callous; **lip** white, diffusely dotted with purple, oblong-subpandurate, 6.5 mm long, 2.25 mm wide, with erect marginal folds near the middle, the epichile obovate, obtuse, minutely verrucose, shortly acuminate, keeled beneath, the hypochile oblong, truncate, hinged below; **column** white, suffused with rose, semiterete, 6.5 mm long, the foot 3 mm long with a short, incurved extension.

VENEZUELA: **Tachira**: epiphytic in cloud forest on the Zumbador Road, alt. ca. 2000 m, *R. Mejía C. s.n.* (Holotype: AMES); Páramo de Tamá, alt. 2600 m, 1974, collected by R. Mejía, cultivated at Colombor-quídeas, 14 Apr. 1988, *C. Luer 13232*(MO).



This species was first discovered in the cloud forests of southwestern Venezuela by Roberto Mejía of Mérida, Venezuela, and a flowering specimen was illustrated by G.C.K. Dunsterville. Since that time this species has become widely cultivated. It has not yet been discovered in the adjacent mountains of Colombia, as have been so many other species of Venezuelan orchids.

The comparatively large flowers are produced successively in a gradually lengthening raceme over a long period of time, sometimes for over a year. The purple-brown, tailless sepals are thick and rigid, smooth on the outside, but densely warty on the inside. Together the lateral sepals form a concave, boat-shaped synsepal covered over by a narrower dorsal sepal, with the apices of all three sepals connivent. Lateral windows are formed to the interior of the flower, much in the same manner as the sepals of several species of *Pleurothallis* and the genera *Ophidion* and *Zootrophion*.

The binomial *Masdevallia navicularis* was made by Kränzlin in his Monograph of 1925 when referring to the original publication of *Scaphosepalum naviculare* in 1921. It was published as *Scaphosepalum naviculare*, not as *Masdevallia navicularis*. This error led to the spurious publication of *Masdevallia scapha*.

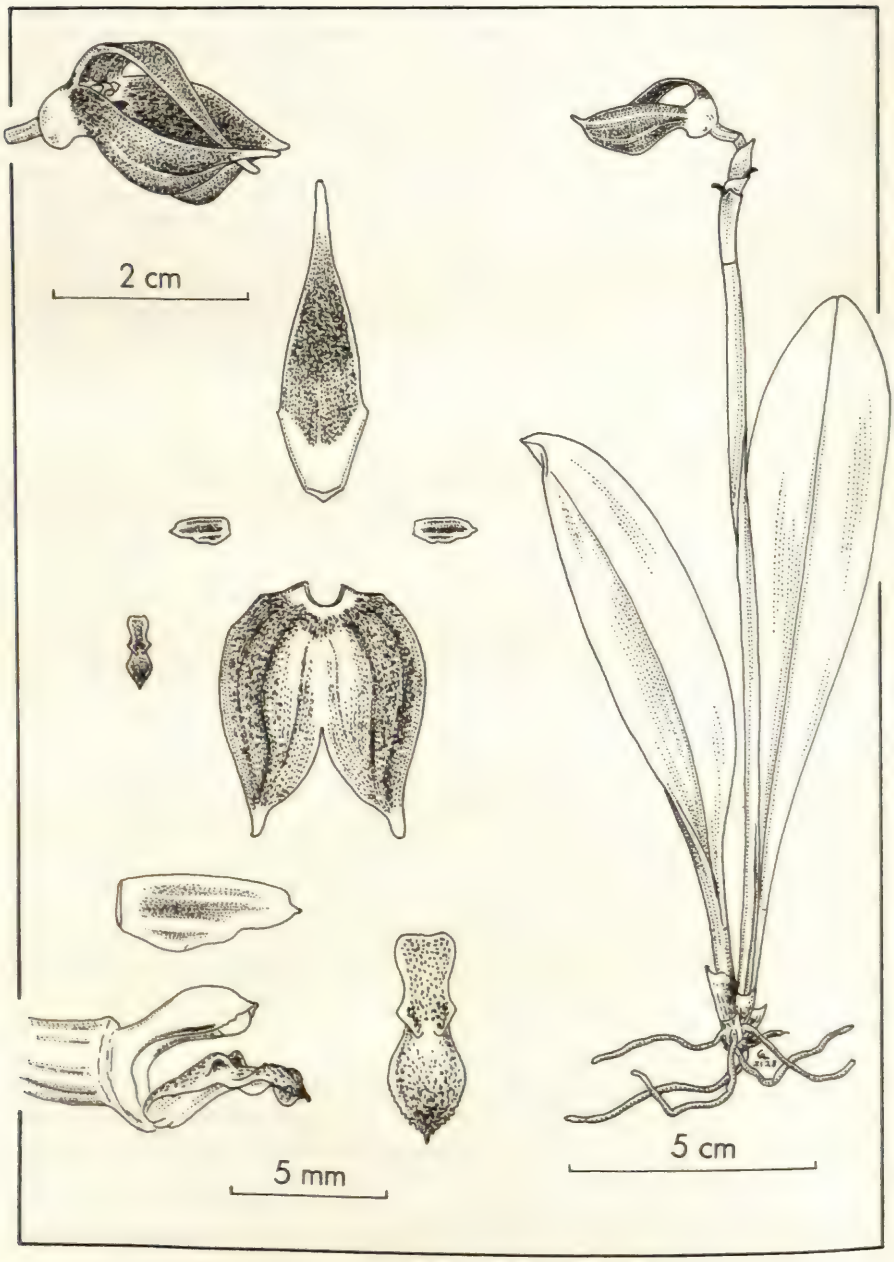


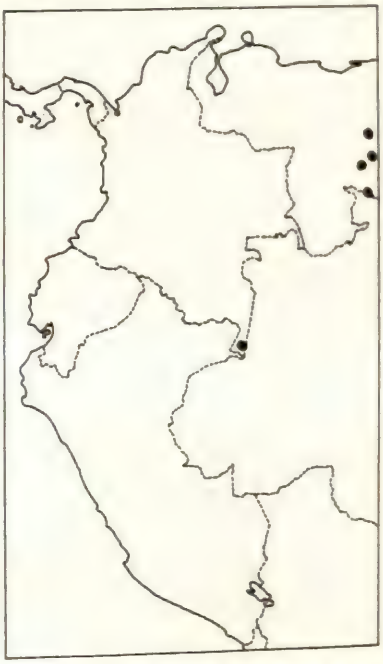

Plate 63. Masdevallia navicularis

**Masdevallia norae** Luer, Lindleyana 3: 44, 1988.

Ety.: Named in honor of Nora Dunsterville, who with her husband, G.C.K. Dunsterville, contributed extensively to our knowledge of the orchid flora of Venezuela.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, 8-14 cm long including the petiole 1.5-3 cm long, the blade elliptical, subacute, 1.8-2.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a congested, successively several-flowered raceme up to 1.5 cm long, borne by an erect, triquetrous peduncle 8-11 cm long, with a bract at the base, from low on the ramicaul; floral bracts imbricating, tubular, 5-8 mm long; pedicel 5-8 mm long; ovary 4-5 mm long; **sepals** dull olive green, diffusely dotted with purple within, essentially glabrous, the dorsal sepal oblong, 13 mm long, 8 mm wide, connate to the lateral sepals for 10 mm to form a broad, cylindrical, sepaline tube, the obtuse apex contracted into a thick, dull yellow-orange, forwardly directed tail 19 mm long, 2 mm broad, the lateral sepals ovate, oblique, 27 mm long, connate 17 mm to form a bifid lamina 15 mm wide, the apices green, acute without forming tails; **petals** white, speckled with purple, oblong, 7 mm long, 2.25 mm wide, the truncate apex shallowly retuse, the labellar half with a longitudinal callus rounded at the base; **lip** dull white, dotted with dark purple, 7.5 mm long, 2.75 mm wide, the margins above the middle with oblique folds, the epichile rounded with the apex suffused with tan and decurved, the disc lightly sulcate, the hypochile oblong, subtruncate, hinged beneath; **column** light green with a thin, purple margin, semiterete, 6 mm long, the foot thick, 3 mm long, with an incurved extension.

VENEZUELA: **Bolívar**: epiphytic in forest between Perai Tepui and Río Icabaru, alt. 500 m, collected by Mr. and Mrs. G.C.K. Dunsterville, cultivated at El Hatillo, 23 July 1982, *C. Luer 8082* (Holotype: SEL); Chimantá-tepui, alt. 1000 m, 24 May 1953, *J.A. Steyermark 75572* (AMES, F, NY); Río Paramichi, Brazilian border, alt. 525 m, 4 Jan. 1962, *J.A. Steyermark 90574* (AMES, VEN); Parqué Nacional Canaima, along stream between San Francisco de Yuruani and San Ignacio de Yuruani, alt. 860 m, 9 Oct. 1984, *S. Knapp & J. Mallet 6731* (US).
COLOMBIA: **Amazonas**: Río Loretoyacu, alt. ca. 200 m, 28 Jan.-7 Feb. 1969, *T. Plowman, T. Lockwood, H. Kennedy & R.E. Schultes 2430* (AMES).



This species is locally abundant in the Amazonian lowlands of Venezuela and Colombia, and most likely adjacent Brazil. It was first discovered over thirty years ago by G.C.K. and Nora Dunsterville. Dunsterville's drawing in *Venezuelan Orchids Illustrated* was erroneously identified as the Ecuadorian *M. guttulata*. *Masdevallia norae* belongs to a large Amazonian complex along with *M. cuprea* and *M. weberbaueri*. From them *M. norae* is distinguished by the nearly glabrous, larger, olive green flowers diffusely dotted with purple within, giving the flowers a pinkish color; a proportionately short sepaline tube; and a proportionately longer tail of the dorsal sepal.

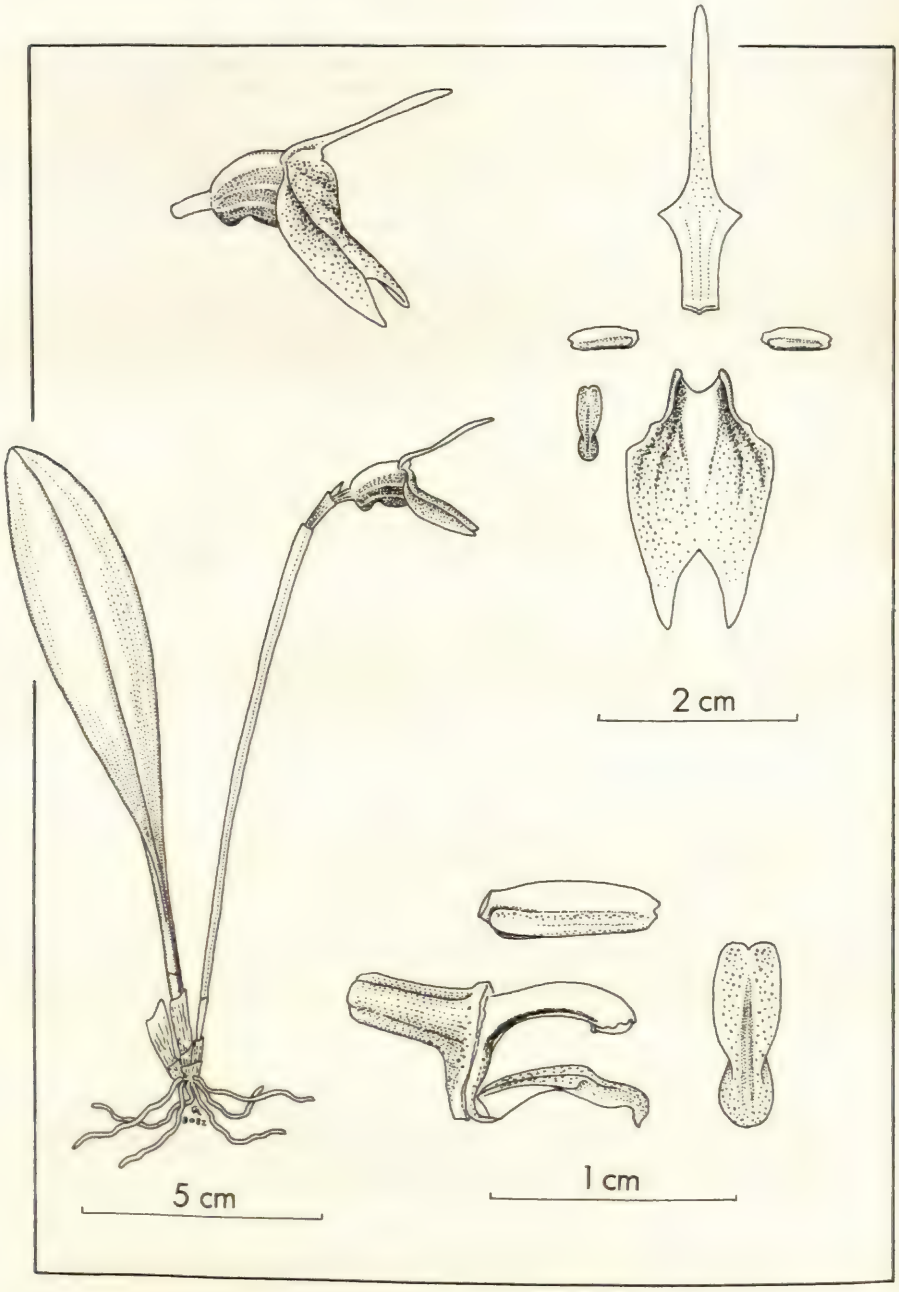



Plate 64. Masdevallia norae

**Masdevallia obscurans** Luer, Monogr. Syst. Bot. 72: 112, 1998.

Bas.: *Masdevallia infracta* Lindl. subsp. *obscurans* Luer, Lindleyana 3: 37, 1988.

Ety.: From the Latin *obscurans*, "covering, darkening," referring to the darkly colored, incompletely opening flower.

**Plant** medium in size, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 6-13 cm long including the petiole 1-3 cm long, 1.5-2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested, many-flowered raceme, 3 cm long or longer, becoming arcuate with increasing length, the peduncle slender, erect, sharply triquetrous, 5-12 cm long, with a bract at the base, from low on the ramicaul; floral bracts thin, imbricating, fugacious, 10-12 mm long; pedicels 20-25 mm long; ovary 5 mm long; **sepals** cellular-glandular or cellular pubescent within, the dorsal sepal dull yellow, suffused with red-brown, obovate, 15-17 mm long, 9 mm wide, connate to the lateral sepals for 8 mm to form a campanulate sepaline tube, the subacute apex contracted into a thick, forwardly directed tail 20 mm long, green dorsally, yellow ventrally, the lateral sepals dark purple below the middle, purple-black above the middle, ovate, oblique, subacute, 16-18 mm long, connate to each other for 14 mm into a lamina 18-20 mm wide, forming a mentum with the column-foot below a central constriction, the short free portions subacute, contracted into slender, yellow tails 11-12 mm long; **petals** light yellow, dotted with purple, oblong, obliquely apiculate at the truncate apex, 7 mm long, 2 mm wide, with a low, longitudinal callus on the labellar half; **lip** light brown, spotted with dark brown, oblong-pandurate, 7 mm long, 2-3.5 mm wide, with marginal folds above the middle, the epichile ovate, subacute, revolute, the hypochile oblong, the base bilobed-retuse, hinged beneath; **column** greenish white, semiterete, 5 mm long, the foot thick, 4 mm long, with an incurved extension.

BRAZIL: without locality, purchased by B. Würstle, cultivated in Spielberg, Germany, 6 Oct. 1986, *C. Luer 11613* (Holotype: MO). **Pernambuco**: without further data, cultivated at Orquidário Binot, Petrópolis, 30 Nov. 1989, *C. Luer 14505* (MO).

This taxon is closely allied to the variable *M. infracta*, and it was initially described as a subspecies of that species. Although slight, the differences are sufficient to permit easy recognition.

As the successively flowered raceme elongates, it becomes arcuate. The flowers do not spread widely, the tail of the dorsal sepal points forward, and the lateral sepals are more deeply connate. The lateral sepals are colored a deep purple-black with a fine cellular pubescence. The petals and lip are basically the same as those of *M. infracta*.

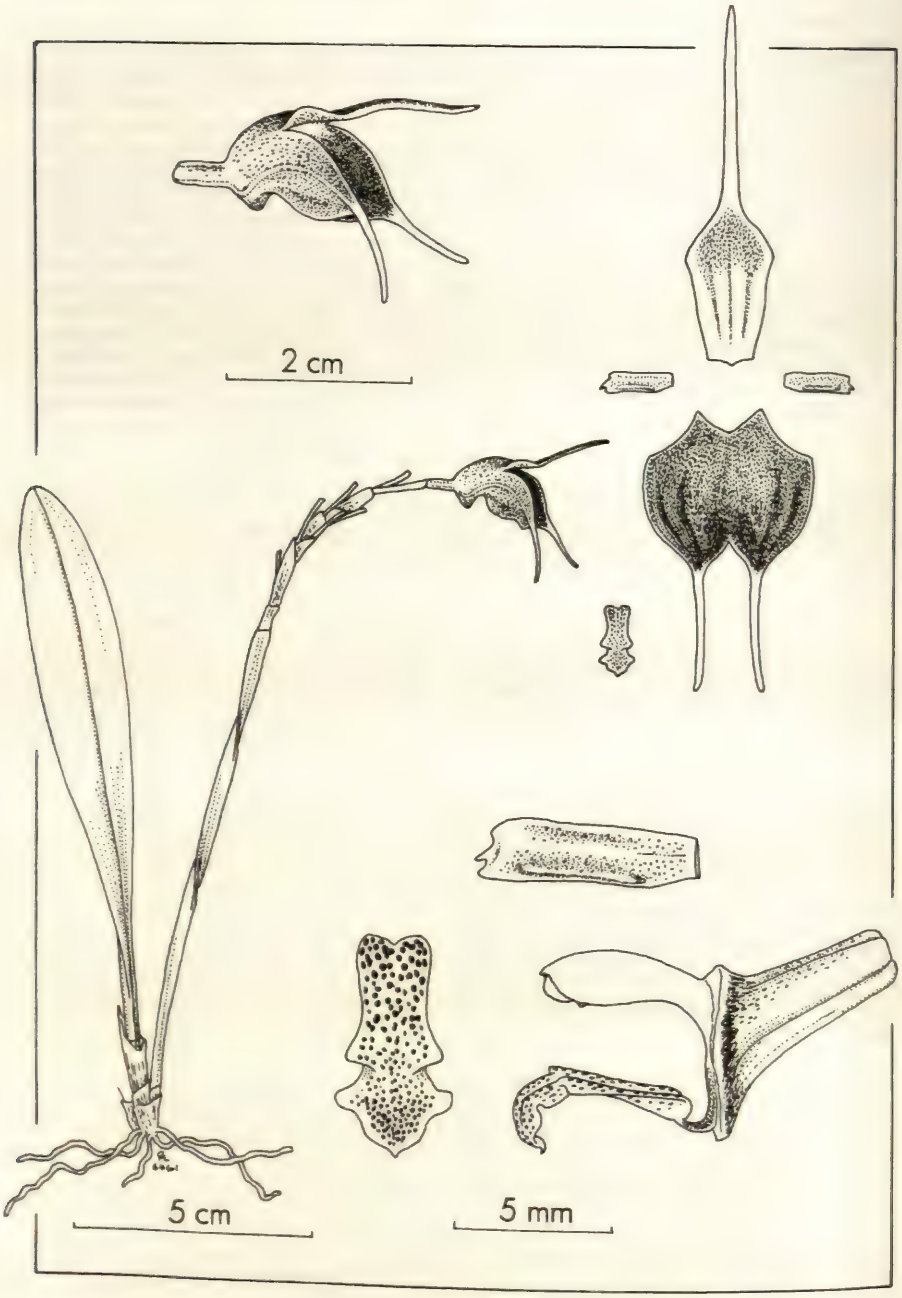


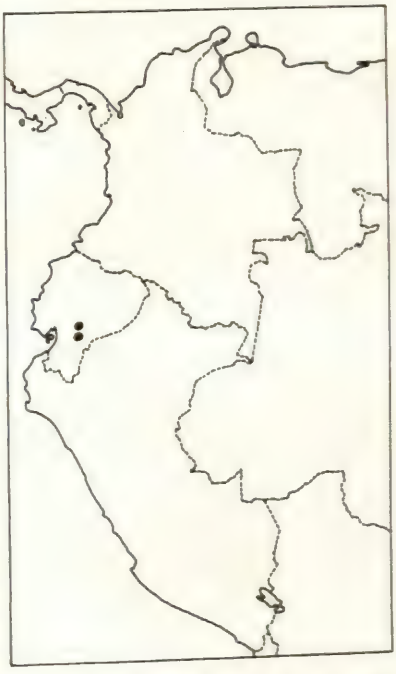

Plate 65. Masdevallia obscurans

**Masdevallia odontopetala** Luer, Phytologia 39: 215, 1978.

Ety.: From the Greek *odontopetalon*, "a toothed petal," referring to the descending tooth at the base of the petals.

**Plant** medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 7-10.5 cm long including an indistinct petiole 1-2 cm long, the blade narrowly elliptical, acute, 1.2-1.8 cm wide, the base cuneate into the channeled petiole. **Inflorescence** a congested, several- to many-flowered raceme of successive flowers, up to 12 cm long, borne by an erect, triquetrous peduncle 22-30 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, more or less imbricating, 15-18 mm long; pedicel 18-20 mm long; ovary 5 mm long; **dorsal sepal** yellow, mottled with purple and shortly pubescent within, ovate, 9 mm long, 8 mm wide, connate to the lateral sepals for 3-4 mm to form a shallow cup, the free portion abruptly expanded, the subacute apex contracted into an erect, slender, yellow-orange tail 5-9 cm long; **lateral sepals** dark purple, ovate, oblique, 17 mm long, 17 mm wide together, connate 7 mm to form a secondary mentum above the column-foot, the acute apices contracted into slender, yellow tails 3.5-6 cm long; **petals** white, elliptical, 4 mm long, 1.75 mm wide, the obtuse apex obscurely bilobed, the lower margin with a broadly rounded laminate wing near the middle and with a 1 mm long tooth at the base; **lip** white, diffusely dotted with purple, oblong-ovate, strongly arcuate, 5.5 mm long expanded, 2.25 mm wide, with a pair of marginal folds near the middle, the epichile narrowly oblong, round, minutely papillose, the hypochile oblong, truncate, hinged below; **column** green, semiterete, 4 mm long, with a slightly longer foot with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic on the eastern slopes of the Andes near Chigüinda, alt. 1800 m, 1975, collected by B. Malo, cultivated at Tarqui near Cuenca, 13 Feb. 1978, *C. Luer 2564* (Holotype: SEL); epiphytic in cloud forest near San Miguel, alt. 2000-2200 m, collected by A. Andreetta & M. Portilla, cultivated in Cuenca, 9 Aug. 1978, *C. Luer 3176* (SEL); Valle de Cuyes near Bomboiza, alt. 1800 m, collected by A. Andreetta, cultivated at Paute, 24 May 1988, *C. Luer 13656* (MO).



This uncommon species is apparently endemic to the forested slopes east of Cuenca where it grows sympatrically with the superficially similar *M. carruthersiana*. Vegetatively similar to most species of the section, *M. odontopetala* is characterized by a long-pedicellate raceme borne by a slender peduncle that far exceeds the leaves in length. Connate into a shallow cup, the dorsal sepal is yellow externally and mottled with purple within, and the purple lateral sepals are expanded beyond the cup. All three sepals terminate in long, slender tails. The petals are most unusual in the section with a long, descending, basal process. The lip is arcuate nearly 180° and borne by an elongated column-foot.

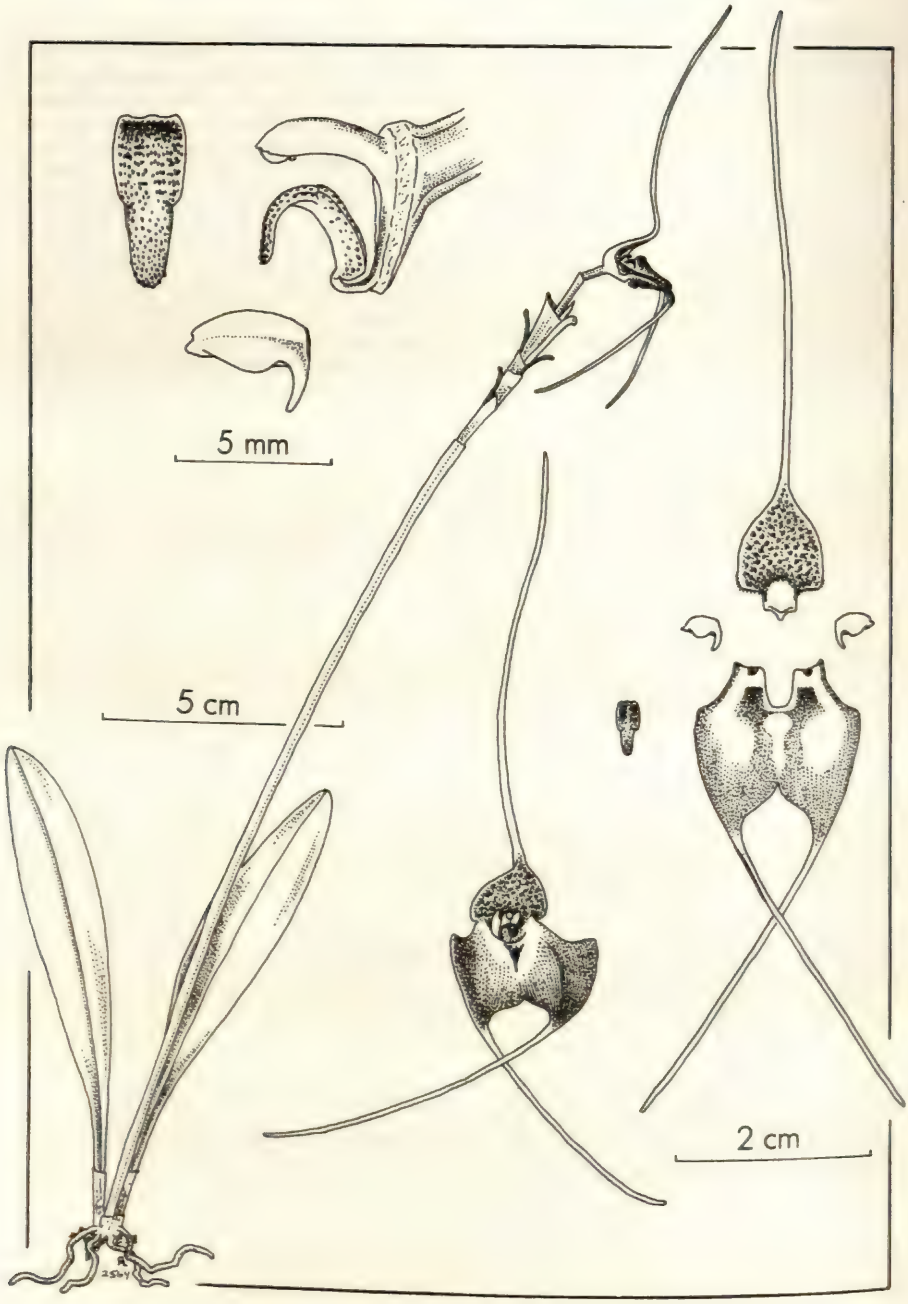


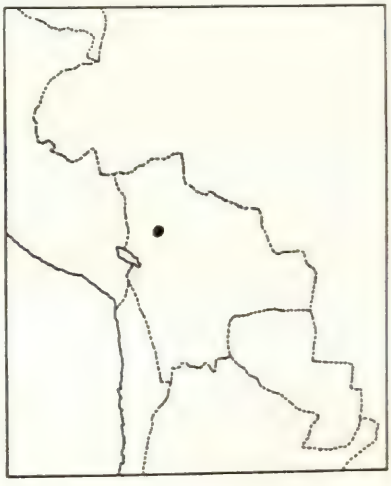

Plate 66. Masdevallia odontopetala

**Masdevallia omorenoi** Luer & Vásquez, Harvard Papers in Botany 2: 58, 1997.

Ety.: Named in honor of Oscar Moreno of Santa Cruz, Bolivia, who discovered this species.

**Plant** medium in size, caespitose; roots slender. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, indistinctly petiolate, 8-10 cm long including the petiole ca. 1.5-2 cm long, the blade narrowly obovate, subacute to obtuse, 1.5 cm wide, the base gradually narrowed below into the petiole. **Inflorescence** a loose, successively few-flowered raceme 2-3 cm long, borne by a slender, suberect, triquetrous peduncle, 8-10 cm long, from low on the ramicaul; floral bracts tubular, 8-10 mm long; pedicels 12 mm long; ovary 3 mm long; **sepals** glabrous, the dorsal sepal dull yellow, the blade 7 mm long, 5 mm wide, connate to the lateral sepals for 4 mm to form a sepaline tube, the apex subacute, contracted into a slender, recurving tail 30-32 mm long, the lateral sepals heavily suffused with brown, connate 13 mm into a broadly ovate lamina with a broad, shallow secondary mentum, 15 mm long, 14 mm wide, the apices approximate, subacute, contracted into slender, recurving tails 20 mm long; **petals** white with purple spots on the apical margin, oblong, 5 mm long, 1.5 mm wide, with the apex rounded, shallowly retuse, the labellar half thickened longitudinally, ending in a rounded callus above the base; **lip** diffusely spotted with purple, oblong-pandurate, with acute, marginal folds above the middle, 4.5 mm long, 1.5 mm wide, the epichile suborbicular with lacerate margins, the disc shallowly channeled medially, the hypochile oblong with the base slanted downward from the level of the disc, subtruncate, hinged on the end; **column** white, semiterete, 4.5 mm long, the foot 2 mm long, with a very short, incurved extension.

BOLIVIA: **La Paz**: Alto Beni, forest near Mabidi, alt. ca. 1500 m, Aug. 1989, collected by Oscar Moreno, cultivated by Dr. Luis Moreno, *R. Vásquez Ch. 1143* (Holotype: Herb. Vásquezianum; Isotype: MO), C. Luer illustr. 16393.



This species is apparently endemic in the lowlands of Amazonian Bolivia. It is most closely related to *M. sanctae-fidei* from Amazonian Colombia and Venezuela, but it is distinguished from the latter by the larger habit with a longer peduncle, a lax raceme, and flowers with a less widely expanded synsepal. Other details of the sepals, petals, and lip are very similar. In common with *M. sanctae-fidei* the base of the lip is inclined or slanted downward from the surface to the lower margin where the hinge is located.

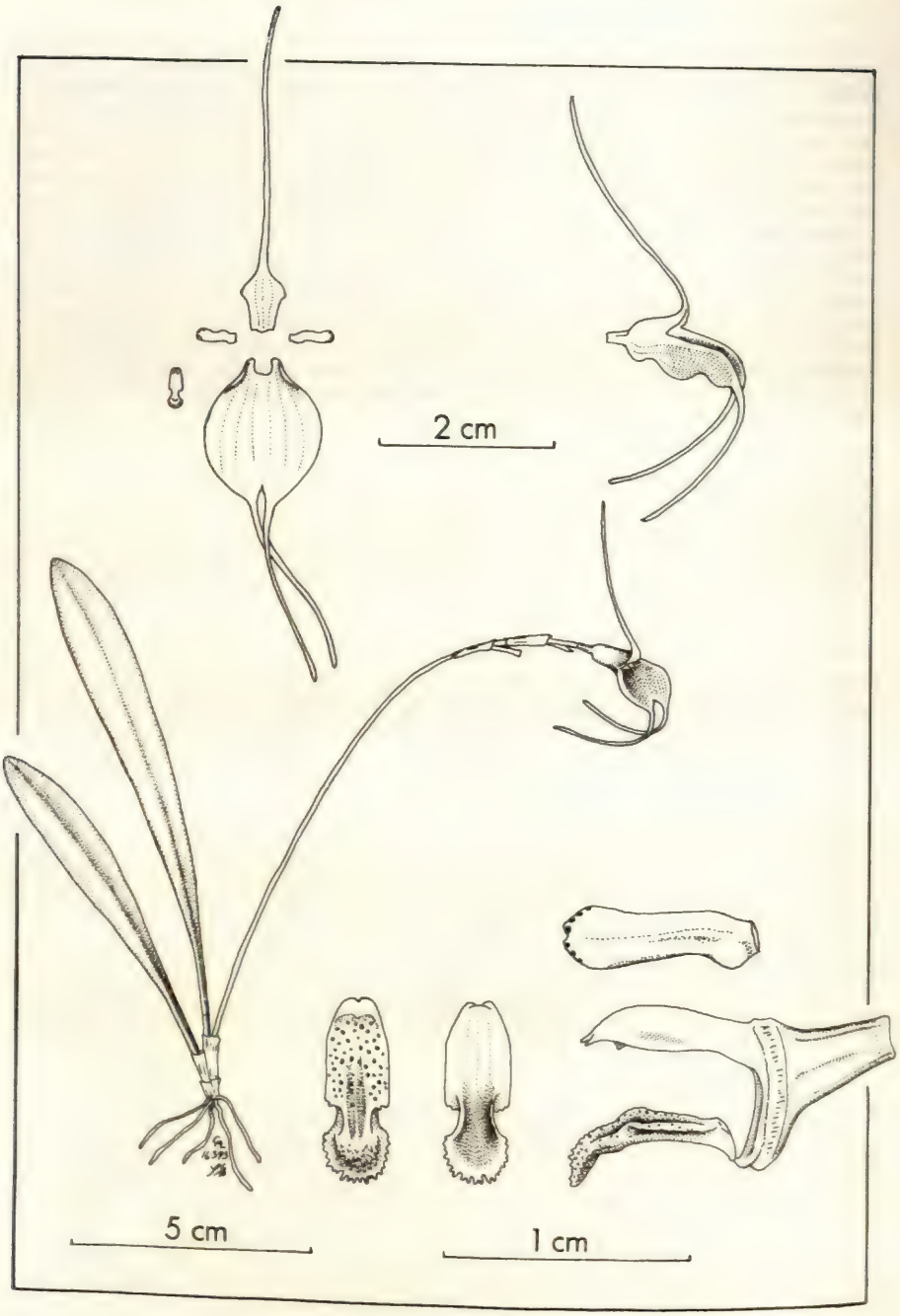



Plate 67. Masdevallia omorenoi

**Masdevallia oscitans** Luer, Monogr. Syst. Bot. 72: 112, 1998.

Bas.: *Masdevallia infracta* Lindl. subsp. *oscitans* Luer, Lindleyana 3: 37, 1988.

Ety.: From the Latin *oscitans*, "gaping, yawning," referring to the widely patent flower.

**Plant** medium in size, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths, **Leaf** erect, coriaceous, narrowly elliptical, subacute, 8-9 cm long including the petiole 1-2 cm long, 1.7-2.1 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested, many-flowered raceme, 3 cm long or longer, the peduncle slender, erect, triquetrous, 10-16.5 cm long, with a bract at the base, from low on the ramicaul; floral bracts thin, imbricating, 12-15 mm long; pedicels 17-25 mm long; ovary 7 mm long; **sepals** red-brown, minutely pubescent within, the dorsal sepal obovate, 13 mm long, 8 mm wide, connate to the lateral sepals for 6.5 mm to form a short, cylindrical tube below the middle, the subacute apex contracted into a slender, reflexed, orange tail 4.5 cm long, the lateral sepals ovate, oblique, subacute, 15 mm long, 9 mm wide, connate to each other for 6 mm, and forming a mentum with the column-foot below a central constriction, widely spread into a flat flower beyond the sepaline tube, the obtuse apices contracted into slender tails ca. 3 cm long; **petals** yellow, dotted with purple, oblong, bidentate-retuse, 6 mm long, 1.5 mm wide, with a low, longitudinal callus on the labellar half; **lip** yellow, spotted with dark purple, oblong-pandurate, 6 mm long, 2 mm wide, with marginal folds above the middle, the epichile ovate, subacute, acutely revolute, the hypochile oblong, the base bilobed-retuse, hinged beneath; **column** rose, semiterete, 5 mm long, the foot thick, 2.5 mm long, with an incurved extension.

BRAZIL: without locality or collector, obtained by J & L Orchids, Easton, CT, from George Verboonen, cultivated 25 April 1987, *C. Luer 12824* (Holotype: MO); without collection data, cultivated at Orquidário Binot, 30 Nov. 1989, *C. Luer 14506* (MO).

This taxon is closely allied to the variable *M. infracta*, and it was initially described as a subspecies of that species. Although closely allied, the variation of the sepals, the most important diagnostic floral part of a *Masdevallia*, is so distinctive that this taxon is readily recognized.

The dorsal sepal is connate to the lateral sepals for no more than half its length into a comparatively short, gaping, cylindrical tube, and the lateral sepals are widely spread into a flat surface beyond the sepaline tube. In all the other forms, varieties, and drawings (*e.g.*, Descourtilz) of *M. infracta* that have been examined, the dorsal sepal is more deeply connate to the lateral sepals so that a deeply cupped sepaline tube is created. In addition, a slender peduncle longer than the leaves is not usually seen in *M. infracta*, and the tail of the dorsal sepal is not as reflexed.

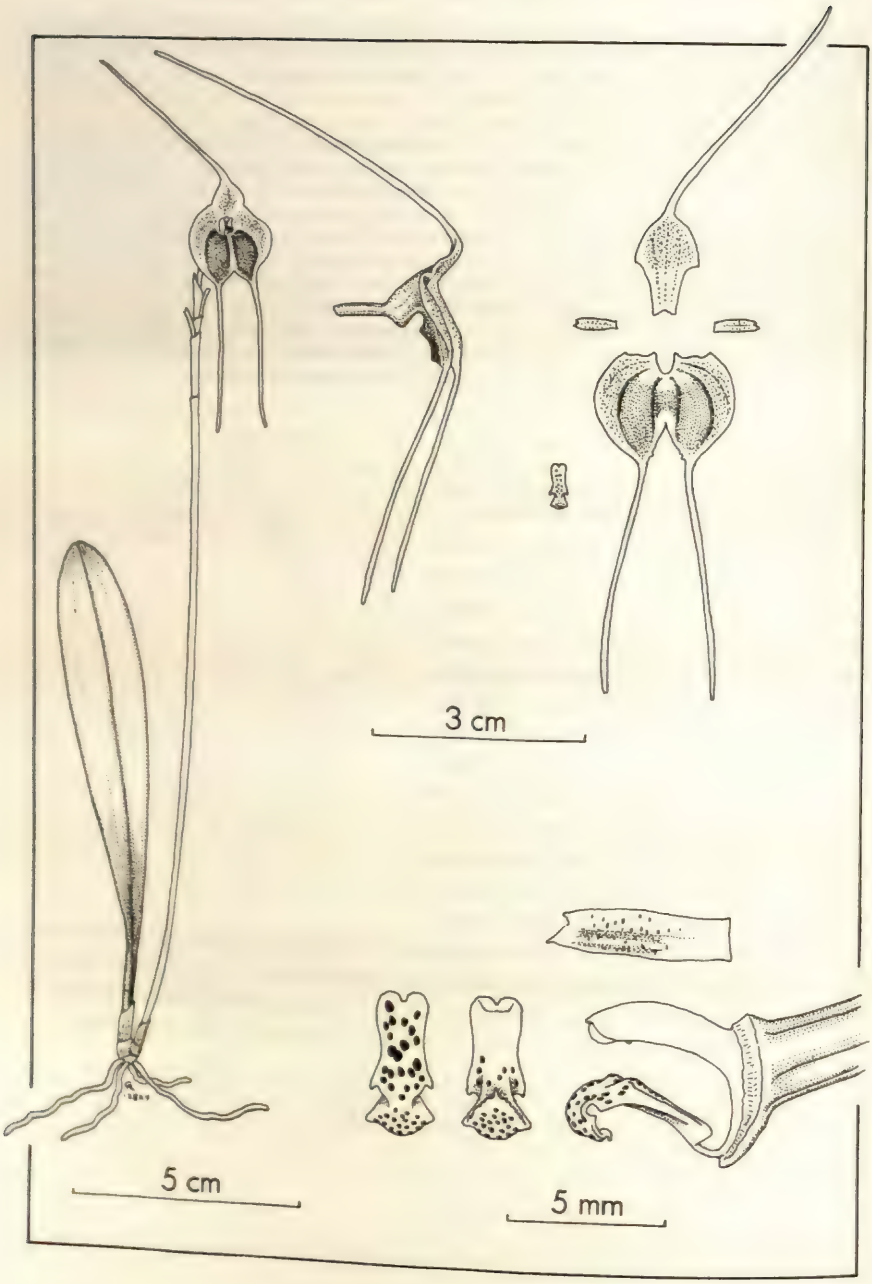


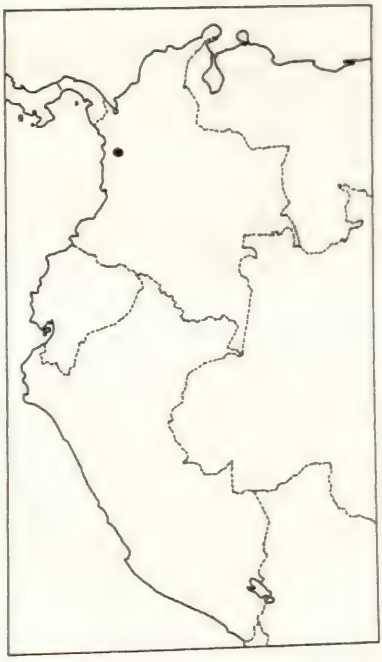

Plate 68. Masdevallia oscitans

**Masdevallia pastinata** Luer, Harvard Papers in Botany 2: 58, 1997.

Ety.: From the Latin *pastinatus*, "ground dug and trenched with a two-pronged hoe," in allusion to the deep rugae of the lateral sepals.

**Plant** medium in size, caespitose; roots fleshy. Ramicauls slender, erect, 2.5-3.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly petiolate, 18-22 cm long, the blade narrowly linear-obovate, subacute to obtuse, 1-1.1 cm wide, gradually narrowed below into the indistinctly petiolate base. **Inflorescence** a single flower produced successively in a congested, long-pedicellate raceme; peduncle erect, slender, triquetrous, 12-13 cm long, from low on the ramicaul; floral bracts loose, tubular, imbricating, 20 mm long, 5-6 mm wide; pedicels 4-5 cm long; ovary 6 mm long; **sepals** fleshy, glabrous, the dorsal sepal dull yellow-orange, the blade ca. 18 mm long, 7 mm wide, connate to the lateral sepals for 6 mm to form a cylindrical, sepaline tube, the apex subacute, contracted into a slender tail 2 cm long, the lateral sepals dull purple externally, ovate, subacute, ca. 28 mm long, 9 mm wide, connate 17 mm into a bifid synsepal with a broad, secondary mentum, deeply and coarsely rugose within, suffused within above the middle with yellow-orange, below the middle with rose, the apices subacute, contracted into tails 7-8 mm long; **petals** orange, oblong, 6 mm long, 2 mm wide, with the apex subacute, the labellar margin with a longitudinal callus, terminating above the base; **lip** orange, oblong-pandurate, with acute, marginal folds above the middle, 7 mm long, 4.5 mm wide, the epichile ovate, acute, long-apiculate, the hypochile oblong, narrowed near the middle, shallowly channeled medially, the base subcordate, with a pair of membranous auricles, hinged on the end; **column** white, semiterete, 5 mm long, the foot 3 mm long, with a short, incurved extension.

COLOMBIA: **Chocó**: Marsella, Quindío, collected by Omar Osorio, exhibited at the Cali orchid show, cultivated 13 Mar. 1997, *C. Luer 18425* (Holotype: MO).



Among the members of subsection *Alaticaules*, this species is distinguished by the long, narrow leaves and a shorter, slender peduncle. The raceme is congested and long-pedicellate. The tail of the dorsal sepal is longer than the blade, and the tails of the lateral sepals are shorter than the blades. Within, the lateral sepals are deeply and irregularly rugose, reminiscent of *M. empusa* Luer and *M. trochilus* Linden & André. The petals are oblong, subacute at the apex, and with a callus along the labellar margin. The lateral folds of the lip are acute and above the middle; the epichile is ovate, acute, and long-apiculate.

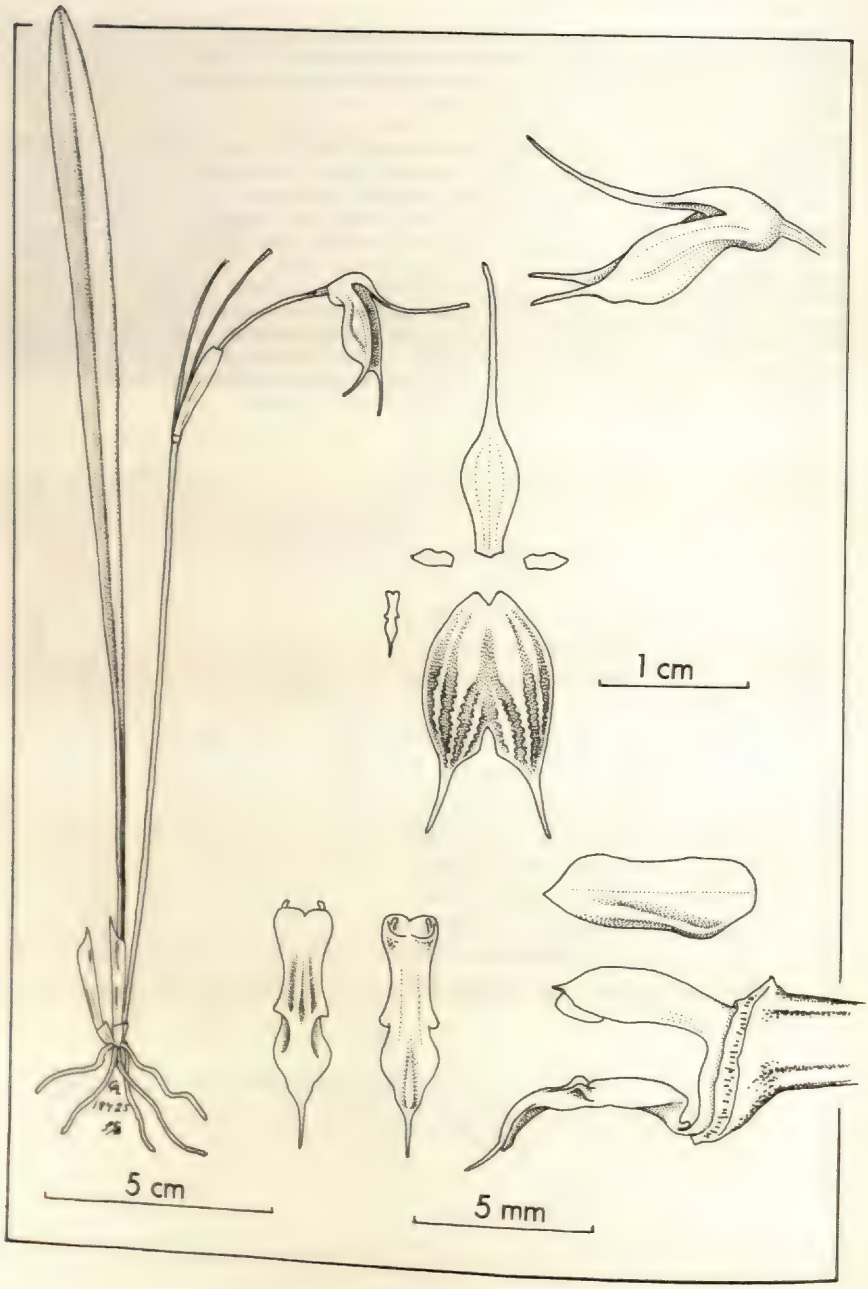



Plate 69. Masdevallia pastinata

**Masdevallia patchicutzae** Luer & Hirtz, Lindleyana 10: 123, 1995.

Ety.: Named for the community of Patchicutza, near where the species was collected.

**Plant** small, epiphytic, caespitose; roots slender. Ramicaul slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-7.5 cm long including the petiole ca. 1 cm long, the blade narrowly obovate, subacute, 1-1.2 cm wide, cuneate below into the petiole. **Inflorescence** a flower produced successively in a congested raceme, borne by an erect, slender, triquetrous peduncle 10-12 cm long, with a bract at the base, from low on the ramicaul; floral bract 8 mm long; pedicel 9 mm long; ovary thick, 3-4 mm long; **sepals** fleshy, dull yellow, intensely suffused with red-purple, cellular-verrucose within above the middle, the dorsal sepal obovate, 11-12 mm long, 7.5 mm wide, connate to the lateral sepals for 5 mm to form a gaping cup, the apex subacute, contracted into a stout, erect, yellowish tail 7 mm long, the lateral sepals subcarinate externally, 14 mm long, connate 10 mm into a concave, obovoid lamina 13 mm wide, forming a broad, conspicuous mentum above the mentum with the column-foot, the broadly rounded apices abruptly contracted into stout tails 4 mm long; **petals** light yellow, more or less oblong, 6.5 mm long, 2 mm wide, the apex tridenticulate, lightly twisted, the labellar margin with a low, longitudinal callus ending in a low, rounded, marginal callus above the base; **lip** red, oblong-subpandurate, 5.5 mm long, 2.5 mm wide, with a pair of low, oblique, lateral folds above the middle, the apex smooth, acute; **column** yellow, semiterete, longitudinally narrowly winged, 5 mm long, the foot 4 mm long with a short, thick, incurved extension.

ECUADOR: **Zamora-Chinchipe:** Cordillera del Condor, Patchicutza, alt. 1300 m, Mar. 1993, *A. Hirtz 5934* (Holotype: MO).

This species is found at a relatively low altitude in the Cordillera del Condor in southeastern Ecuador, where it is apparently endemic. It is allied to the large complex of species related to *M. cuprea* that rings the Amazon basin. It is distinguished from them by the longer peduncle that far surpasses the leaf; a broad, sepaline cup with a prominent, secondary mentum; well-developed but short, stout, sepaline tails; and a lip with a smooth epichile.

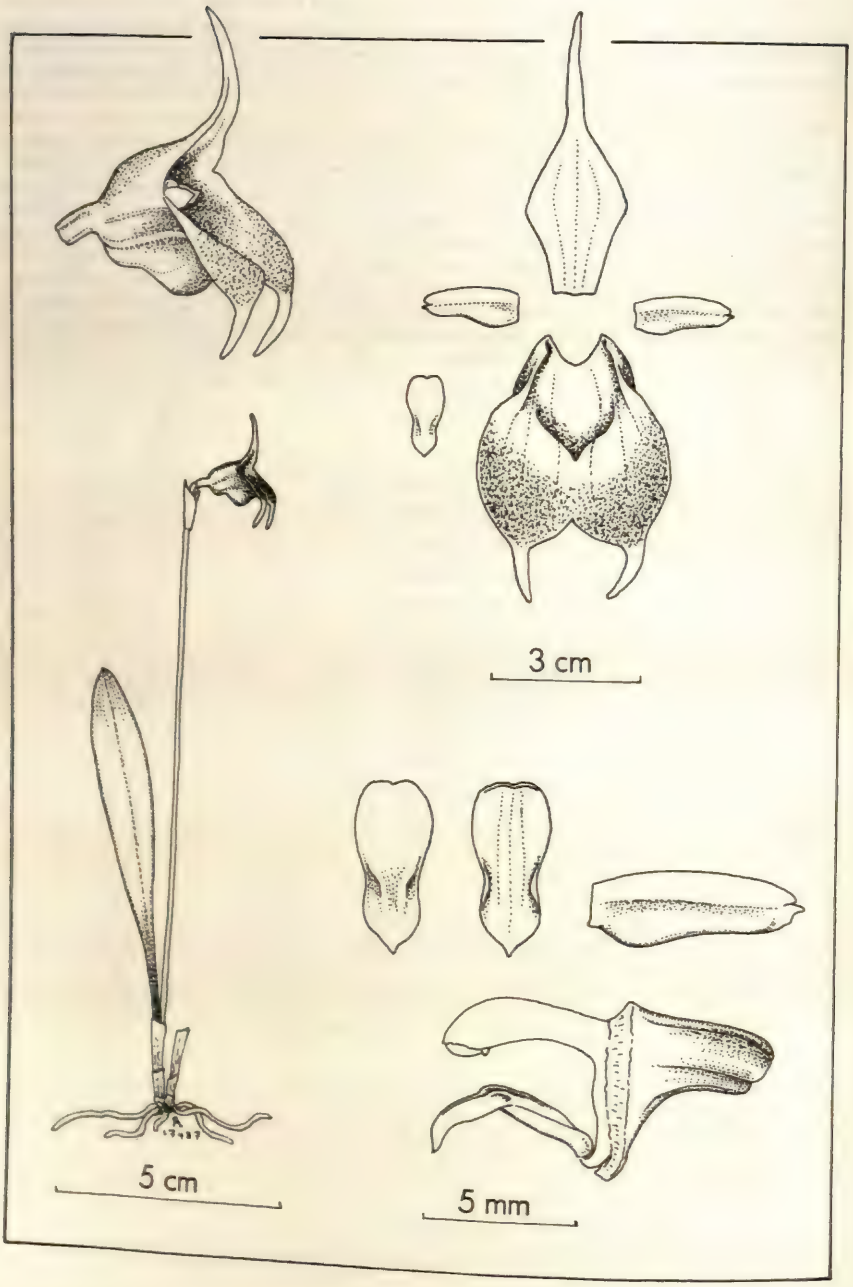


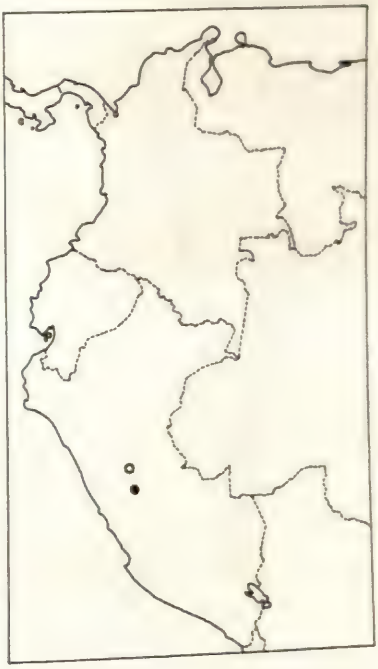

Plate 70. Masdevallia patchicutzae

**Masdevallia phoenix** Luer, Phytologia 39: 222, 1978.

Ety.: Named for the legendary, long-lived bird-monster of fire.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-15 cm long including the narrow, subpetiolate base, the blade narrowly elliptical, subacute, 1.5-2.5 cm wide, gradually narrowed below into the indistinct petiole 2-4 cm long. **Inflorescence** a congested, successively several-flowered raceme borne by an erect, sharply triquetrous peduncle 17-32 cm long, with a basal bract, from near the base of a ramicaul; floral bracts thin, imbricating, 10 mm long, enclosing the pedicels ca. 5 mm long; ovary 5 mm long; **sepals** dull greenish rose, heavily spotted with dark purple, the blade of the dorsal sepal obovate, ca. 18 mm long, 12 mm wide, connate to the lateral sepals for 9 mm to form a subconical cup, the obtuse apex acuminate into a dark purple, forwardly directed tail 4-5 cm long, the lateral sepals ovate, oblique, ca. 30 mm long, connate for 22 mm to form a lamina 22 mm wide with a narrow, obtuse mentum, the acute apices acuminate into approximate, forwardly directed, dark purple tails ca. 3 cm long, the surface of each lateral sepal with 3 smooth lamellae which become verrucose toward the apices; **petals** greenish white, marked with purple around the basal callus, oblong, 8 mm long, 2 mm wide, the apex rounded, apiculate, the labellar margin longitudinally thickened with a rounded callus at the base; **lip** greenish white, spotted with dark purple, oblong, 9 mm long, 5 mm wide, the margins above the middle erose and revolute, the apex subacute, denticulate-lacerate, recurved, with a small, central callus, the base truncate, hinged below; **column** green, semiterete, 7 mm long, the foot spotted with purple, 6 mm long with a short, incurved extension.

PERU: **Huánuco**: without locality, imported by Don Richardson from R. Stümpfle, cultivated by J & L Orchids, Easton, Connecticut, 7 Nov. 1977, *C. Luer 2119* (Holotype: SEL); epiphytic in forests near Tingo Maria, alt. 1500 m, collected by Manuel Arias 30 June 1981, cultivated in Munich, Germany, by *W. Königer s.n.* (K, M, MO, SEL, USM, W, Herb. H. Königer).



The late Don Richardson of Greentree, Manhasset, New York, first imported this grotesque species from R. Stümpfle of Lima, Peru, in July 1976. The only collection data was Huánuco. It remains an uncommon species. Vegetatively, *M. phoenix* is indistinguishable from the majority of other species in the section. The unique flowers, however, are not to be mistaken for anything else. The purple-spotted lateral sepals spread beyond the short, sepaline cup, and all three forwardly directed tails converge toward their tips, as the beak of some bird-like monster.

Plate 71. Masdevallia phoenix

**Masdevallia pinocchio** Luer & Andreetta, Phytologia 39: 224, 1978.

Ety.: Named for Pinocchio, Lorenzini's long-nosed, wooden puppet.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, petiolate, 7-12 cm long including the petiole 2-4 cm long, the blade elliptical, subacute, 1.9-2.8 cm wide, the base cuneate into the channeled petiole. **Inflorescence** a congested, successively several-flowered raceme up to 2 cm long, borne by an erect, triquetrous peduncle 16-30 cm long, subtended by a tubular bract, from the base of a ramicaul; floral bracts thin, tubular, imbricating, 10 mm long; pedicel 20-25 mm long; ovary 6-8 mm long; **dorsal sepal** bright yellow-orange, minutely subverrucose, narrowly triangular, 27-36 mm long, 9-10 mm wide, connate basally with reflexed margins to the lateral sepals for 3 mm to form a widely spread sepaline cup, the free portion acuminate to the acute apex; **lateral sepals** orange, suffused with brown, minutely subverrucose, connate 12-13 mm into an ovate, bifid synsepal 20-25 mm long, 15-18 mm wide, forming a deep, laterally compressed, conical secondary mentum, the free portions orange, triangular, acute; **petals** yellow, ovate-oblong, oblique, 6 mm long, 3 mm wide, the truncate apex obscurely trilobed, the upper margin dilated below the middle, the labellar half longitudinally callous, more or less ovoid-callous above the base, with a subacute marginal angle at the base; **lip** oscillating, horizontal in the natural position, maroon, oblong, 8 mm long, 3.25 mm wide, the margins above the middle deflexed with the acute apex decurved, acutely deflexed above the base below a pair of low, basal calli, flexibly hinged below; **column** yellow-white, semiterete, 7 mm long, the foot 4 mm long including the forwardly angled extension.

ECUADOR: **Napo**: epiphytic in Valle de Quijos near Río Salado, alt. ca. 1500 m, Jan. 1976, collected by A. Andreetta & A. Hirtz, cultivated in Cuenca, 5 Feb. 1978, *C. Luer 2461* (Holotype: SEL); Río Salado, alt. 1300 m, 5 Oct. 1984, *A. Hirtz & A. Andreetta 1941* (MO); same locality, Nov. 1991, *A. Hirtz 5587* (MO).

This unique species is rare and endemic in eastern central Ecuador at relatively low altitudes. Prior to 1984, it had been known from only the one plant collected by A. Hirtz and Father Andreetta, but even today after recent collections it remains a rare plant. However, it has been successfully propagated by seed in cultivation.

Vegetatively similar to most other species of the section, *M. pinocchio* is distinguished by a congested long-pedicellate, successively flowered raceme borne by a peduncle that exceeds the leaves. The flower is one of the most distinctive of the genus. In the center of the relatively large, yellow, gaping, bilabiate flower, the horizontally balanced, blackish lip oscillates. The photo used for the frontispiece clearly shows the lip in extremes of position. A similarly balanced, passively motile lip occurs frequently in subgenus *Masdevallia*, especially in subsections *Caudatae* and *Oscillantes*.

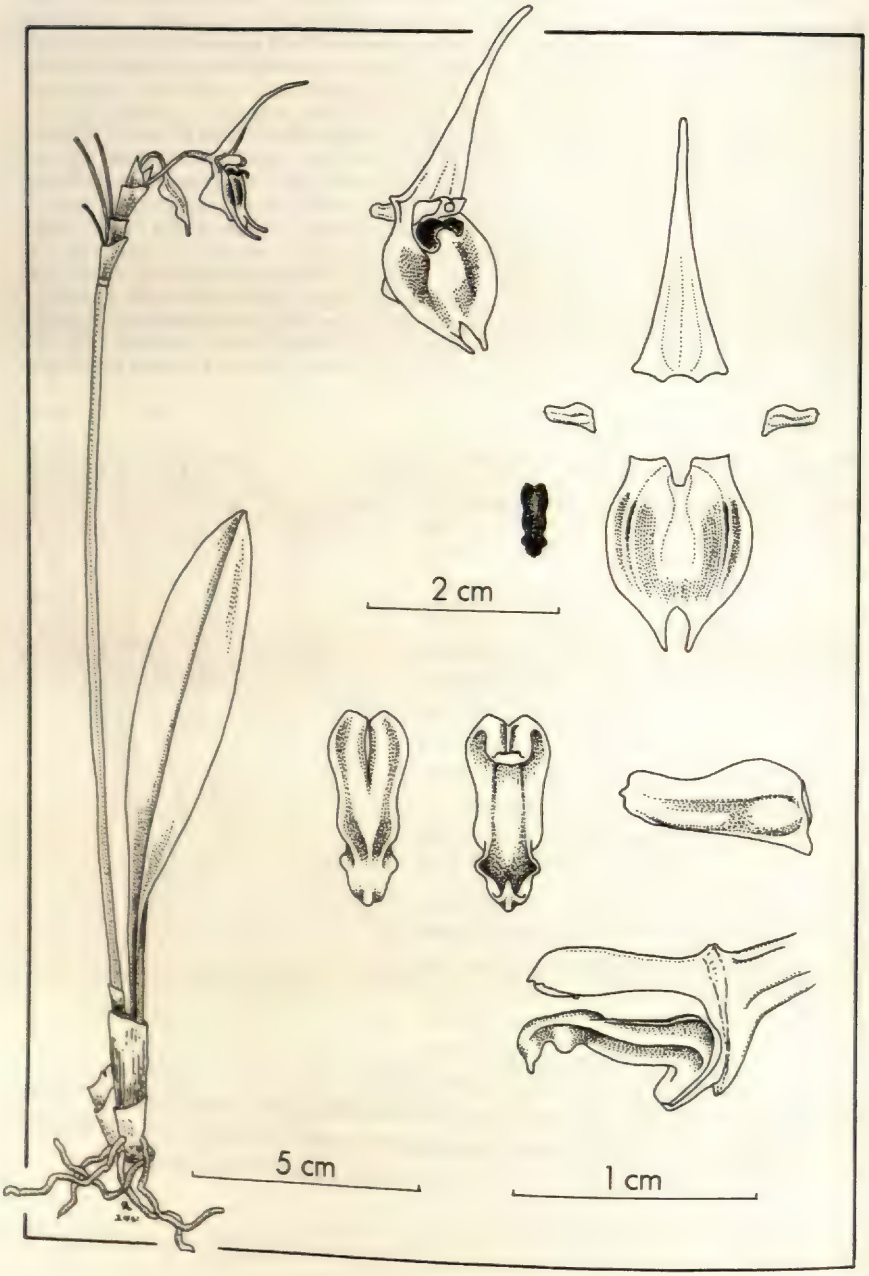



Plate 72. Masdevallia pinocchio

**Masdevallia portillae** Luer & Andreetta, Selbyana 2: 378, 1978.

Ety.: Named in honor of Sr. Mario Portilla of Cuenca, Ecuador, who along with Padre Andreetta discovered this species.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 12-15 cm long including the petiole 2-3 cm long, the blade elliptical, obtuse, 2.5-3 cm wide, the base cuneate into the petiole. **Inflorescence** a congested raceme of large, successive, nutant flowers, borne by a stout, erect, triquetrous peduncle 14-18 cm long, 5 mm thick at the apex, subtended by a bract from the base of a ramicaul; floral bracts imbricating, subacute, broadly conduplicate, 14 mm long, 7 mm broad; pedicel stout, 7-8 mm long; ovary 7 mm long; **dorsal sepal** yellow, suffused with purple above the middle, narrowly ovate, 49 mm long including the green apex, 9 mm wide, connate to the lateral sepals for 14 mm to form a short, cylindrical tube, the free portion narrowly triangular, forwardly directed, gradually narrowed to the acute apex; **lateral sepals** maroon, glabrous, connate 37 mm into an elliptical, shortly bifid, cymbiform lamina 45 mm long, 24 mm wide, with the acute, approximate apices produced into tails 4 mm long; **petals** white, oblong, 9 mm long, 3 mm wide, the obtuse apex erose-apiculate, the labellar half with a longitudinal, alate carina above the middle, produced into a thick, obtuse tooth above the base; **lip** maroon, oblong-subpandurate, 10 mm long, 4 mm wide, the margin with a pair of acutely angled wings overhanging the narrowed central portion, the epichile ovate, obtuse, densely spiculate, with 3 longitudinal, spiculate crests, the hypochile oblong with concave, basal angles, the truncate base hinged on the end; **column** purple, semiterete, 6.5 mm long, the stout foot 4 mm long with a short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest, Valle de Cuyes near Bomboiza, alt. 1500-1800 m, Mar. 1978, collected by A. Andreetta & M. Portilla, cultivated in Cuenca, 18 Aug. 1978, *C. Luer 3445* (Holotype: SEL); same collection, cultivated at Paute, 24 May 1988, *C. Luer 13635* (MO); between Mendez and Limón, alt. 1000 m, cultivated by *A. Hirtz 4264* (MO).

This unusual species is rare and apparently endemic in one area of southeastern Ecuador, having been collected but a very few times by Father Andreetta and Mario Portilla. Vegetatively similar to other species of the section, *M. portillae* is distinguished by the thick peduncle about as long as the leaves. The large, rigid flower is borne in a short-pedicellate, congested raceme. The narrow dorsal sepal overlies the broad, nonverrucose, cymbiform synsepal, which ends in a pair of short, approximate tails. The callus of the petals ends in a short, conical projection. The folds at the middle of the lip are wing-like and the epichile is densely spiculate.

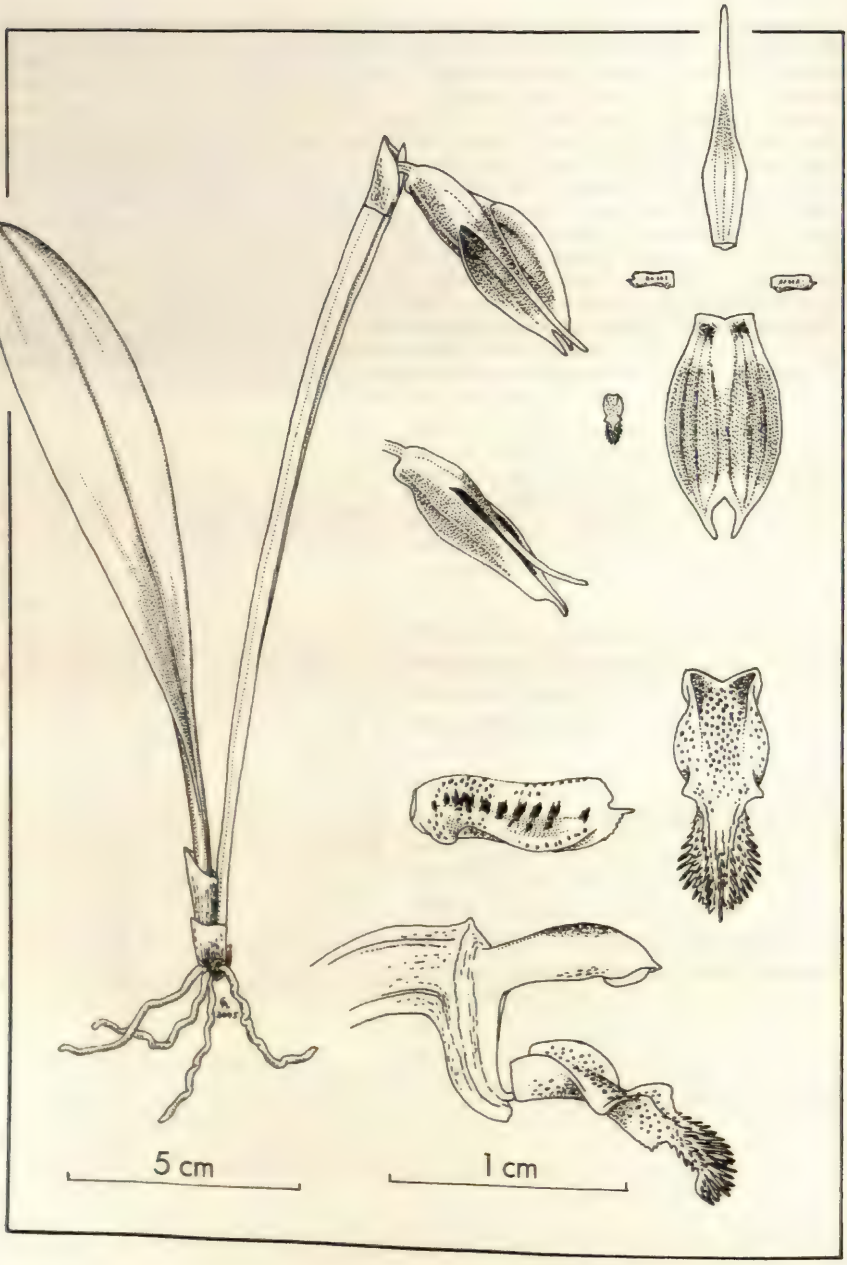



Plate 73. Masdevallia portillae

**Masdevallia posadae** Luer & Escobar, Selbyana 7: 74, 1982.

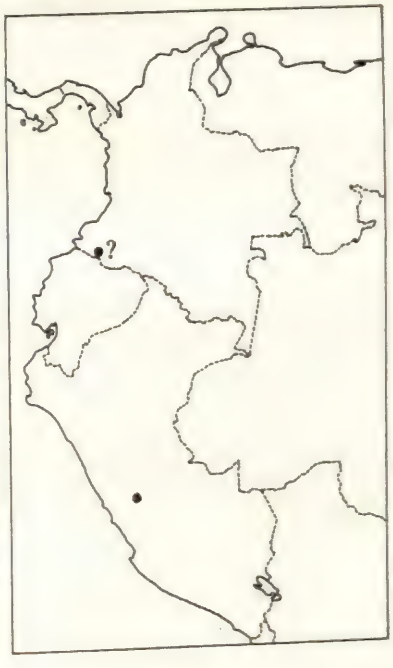
Ety.: Named in honor of Sr. Jaime Posada of Medellín, Colombia, who has cultivated this species at Colomborquídeas.

Syn.: *Masdevallia sijmiana* Königer, Arcula 3: 67, 1995.

Ety.: Named in honor of Antonius P. Sijm of Venhuizen, The Netherlands, who cultivates this species.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 8-18 cm long including an indistinct petiole 2-3 cm long, the blade elliptical, subacute to obtuse, 1.8-3 cm wide, cuneate below into the stout, channeled petiole. **Inflorescence** a subcongested, successively flowered raceme up to 7 cm long, borne by an erect, stout, triquetrous peduncle 12-24 cm long, up to 5 mm thick above, with a bract at the base, from low on the ramicaul; floral bracts foliaceous, imbricating, 15-22 mm long; pedicels 17-25 mm long; ovary 5-9 mm long; **sepals** fleshy, yellow to yellow-orange, lightly suffused with red-brown, glabrous externally, microscopically verrucose within, obovate, 15-17 mm long, 7 mm wide, connate to the lateral sepals for 8-10 mm to form a cylindrical, sepaline tube, the apex triangular, acute, contracted into a slender, ascending to erect tail 5-7 cm long, the lateral sepals suffused with purple, connate 19-25 mm to form a subquadrate synsepal 22-25 mm long, 24-30 mm wide, shallowly concave centrally between longitudinal convexities along the veins, the apices obtuse, contracted into slender, descending tails 3.5-5.5 cm long; **petals** white, oblong, 6.5-7 mm long, 1.75-2 mm wide, the apex obtuse, obscurely bilobulate, the labellar half with a low, longitudinal callus terminating in a low, rounded prominence above the base; **lip** ivory, diffusely dotted with purple, narrowly oblong-pandurate, 6.5-7 mm long, 2-2.5 mm wide, with prominent, obtuse, triangular, lobe-like, marginal folds near the middle, the disc shallowly sulcate medially, the epichile ovate with the apex acute, acuminate, minutely verrucose, the hypochile oblong, the base subcordate, hinged on the end; **column** white with purple margins, semiterete, 5.5-6 mm long, the foot stout, 3 mm long, with a short, incurved extension.

COLOMBIA: **Nariño**: without specific locality, collected by E. Acevedo, July 1977, cultivated by L. & J. Posada at Colomborquídeas, 21 July 1978, *C. Luer 2936* (Holotype: SEL; Isotype: JAUM; clonotype: K); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13292* (MO).
PERU: **Junín**: Chanchamayo: Huarango, alt. 900-1200 m, collected by M. Arias, flowered in cultivation by A.P. Sijm in Venhuizen, The Netherlands, 1994, *W. Königer WK-40* (holotype of *M. sijmiana*: M; clonotypes: K, USM, Herb. H. Königer); without collection data, obtained from J. Meza T., cultivated by Maduro's Tropical Flowers in Cerro Punta, Panama, 18 Nov. 1998, *C. Luer 18978* (MO).




This handsome species is known from two distant localities. It was first reportedly found in southern Colombia, and later in northern Peru. The sepals of some of the Peruvian plants are slightly larger than those of many of the Colombian plants, but the dimensions overlap, and all other details of the flowers of the two are the same. Compare the two paintings by Trechslin in *Thesaurus Masdevalliarum*-4 and *Thesaurus Masdevalliarum*-20. The species is most closely related to *M. trochilus*.

Vegetatively similar to other large species of the section with thickly coriaceous, obtuse, shortly petiolate leaves, *M. posadae* is characterized by the long, stout peduncle that bears a subdense, successively large-flowered raceme. The flowers are produced in rapid succession because a flower is often accompanied by a large

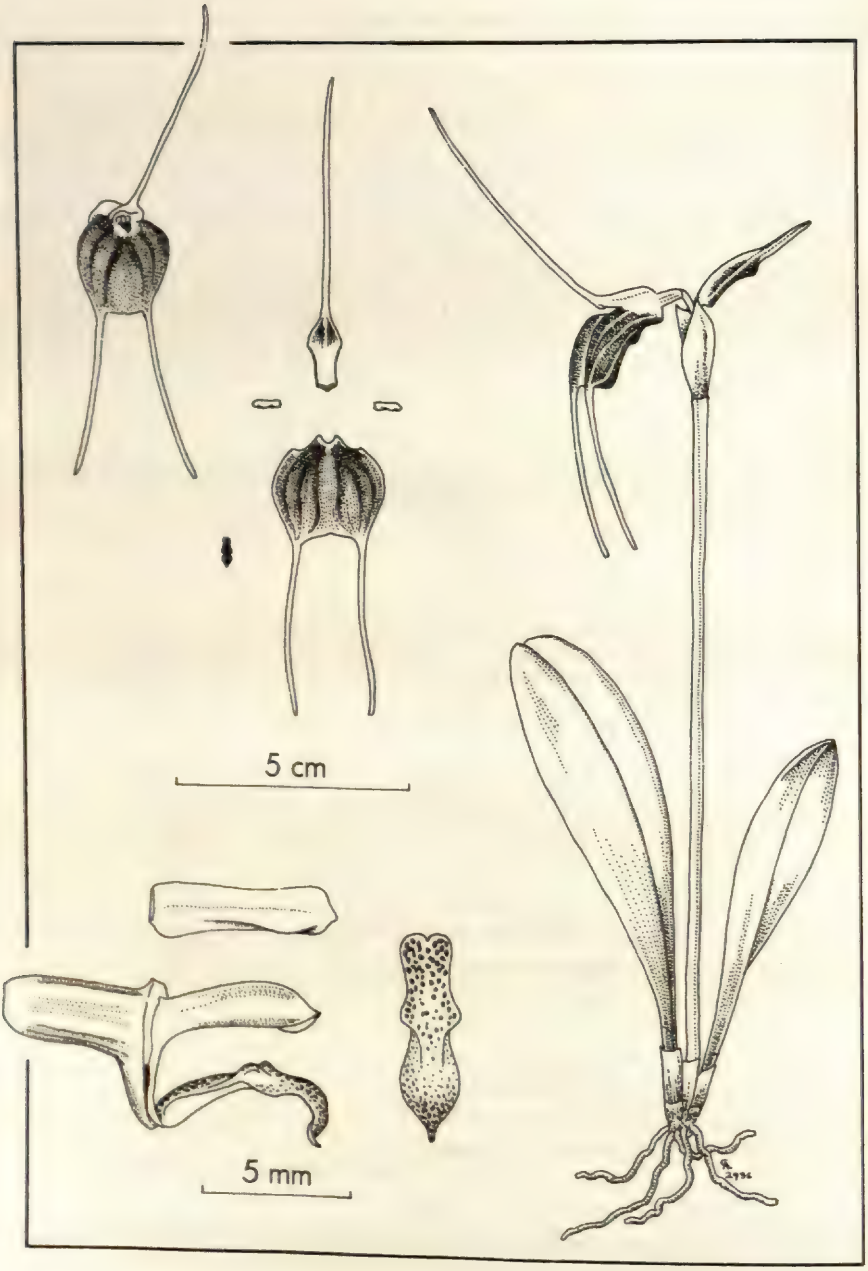



Plate 74. Masdevallia posadae

bud. The sepals are connate into a cylindrical tube. The dorsal sepal is orange, suffused with brown, and the erect tail is also orange. The lateral sepals are deeply connate into a dark purple, expanded synsepal that is coursed by thickened veins. The obtuse apices are abruptly contracted into descending, yellow-green tails. The petals are oblong, obtuse, and longitudinally callous on the lower half. The lip is divided by obtuse, marginal folds into an ovate, acuminate epichile and an oblong hypochile.

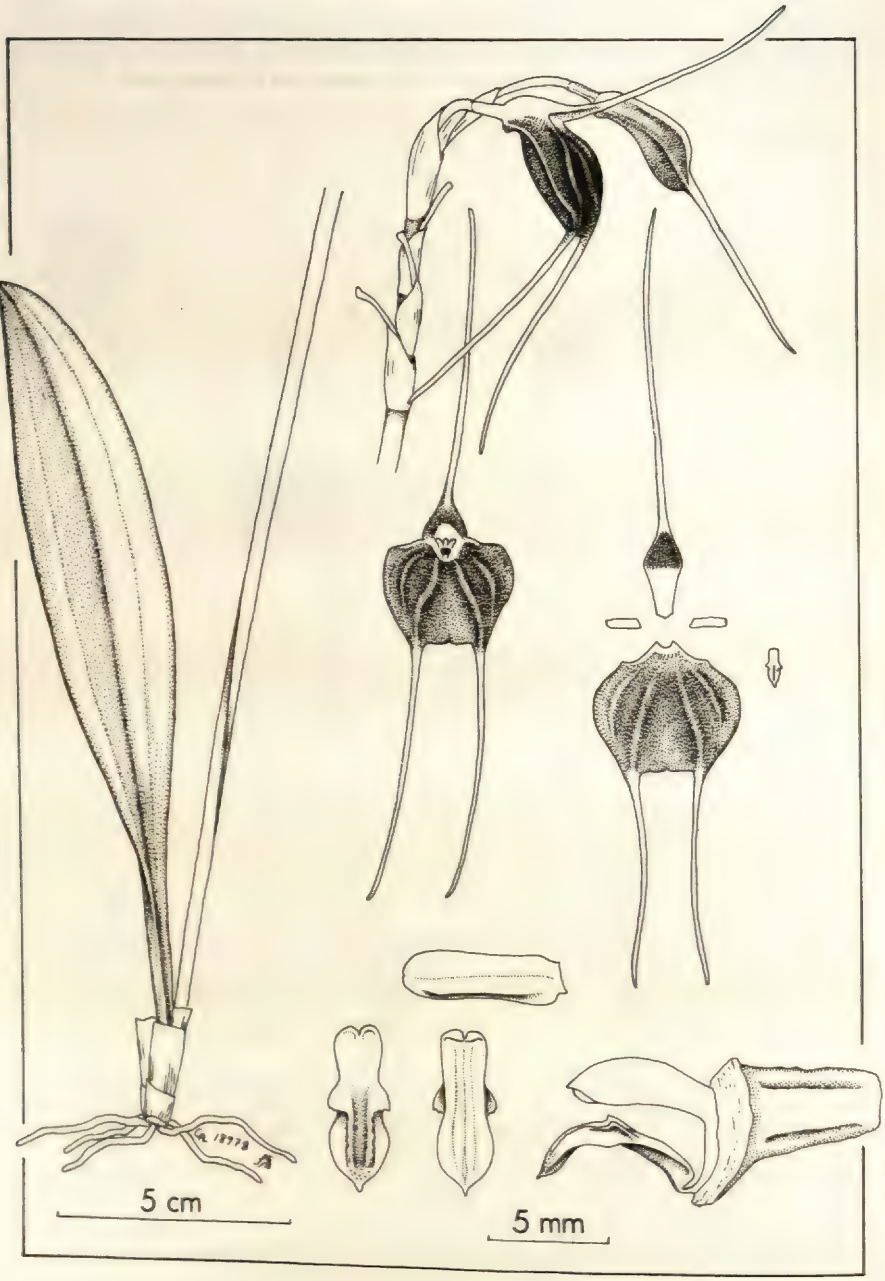



Plate 75. Masdevallia posadae
(M. sijmiana)

**Masdevallia prosartema** Königer, Die Orchidee 32: 68, 1981; emend. 36: 87, 1985.

Ety.: From the Greek prosartema, "a decorative pendant, a medallion," referring to the appearance of the flower.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2.5-4.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 13-20 cm long including the petiole 2-4 cm long, the blade narrowly elliptical-obovate, subacute, 2-3 cm wide, gradually narrowed below into the channeled petiole. **Inflorescence** a congested, successively flowered raceme up to 8 or more cm long, borne by an erect, stout, triquetrous peduncle 19-25 cm long, with a bract at the base, from low on the ramicaul; floral bracts ribbed, imbricating, conduplicate, 25-30 mm long; pedicel 22-25 mm long; ovary 6 mm long; dorsal sepal yellow, oblong, 12 mm long, 5 mm wide, connate to the lateral sepals for 7.5 mm to form a cylindrical, sepaline tube, the acute apex of the triangular free portion contracted into a slender, upcurving tail ca. 35 mm long; lateral sepals dark purple, the veins sulcate and minutely verrucose within, connate 22 mm into a subcordate, shallowly concave lamina 24 mm long, 22 mm wide, the broadly obtuse apices abruptly contracted into slender, decurved, green tails ca. 15 mm long, the base contracted into a shallow mentum with the column-foot; **petals** white, cartilaginous, ovate-oblong, 7.5 mm long, 1-3 mm wide, the apex acute, the base dilated with a smooth, rounded callus on the labellar half; **lip** white, diffusely dotted with purple, subpandurate, 7 mm long, 2.25 mm wide, the truncate apex yellow, minutely verrucose, with abruptly reflexed margins to form a 1 mm long, fin-like apiculum, elliptical below the median constriction with a subtruncate base, hinged beneath; **column** greenish white suffused with purple, semiterete, 6 mm long, the foot 3 mm long with an incurved extension.

PERU: **Amazonas**: Bongará, between Chachapoyas and Pomacochas, alt. 2000 m, Aug. 1979, *W. Königer, H. Königer, J. Meza & R. Almenara K-21d* (Holotype: SEL; clonotypes: K, M); same collection, cultivated by W. Königer in Munich, Germany, May 1980, *C. Luer 5284* (SEL); same collection, cultivated at Colomborquídeas, 25 Apr. 1988. *C. Luer 13304* (MO). Without collection data, cultivated by Lillian Severin, #53, in Cupertino, CA, 1990, *C. Luer 14813* (MO).

This rare species was discovered by Königer et al. in 1979 in the department of Amazonas in northern Peru. Vegetatively, *M. prosartema* is similar to most other large species of the section, and it appears to be most closely allied to *M. trochilus*. The sepals are connate into a proportionately short tube, and the synsepal is broadly expanded below. Compared to *M. trochilus*, the synsepal is only slightly inflated above the middle. It is similarly sulcate along the veins and longitudinally convex between.

A large, rounded swelling terminates the longitudinal callus of the petal. The lip is most distinctive with a narrowly acute, fin-like apiculum.

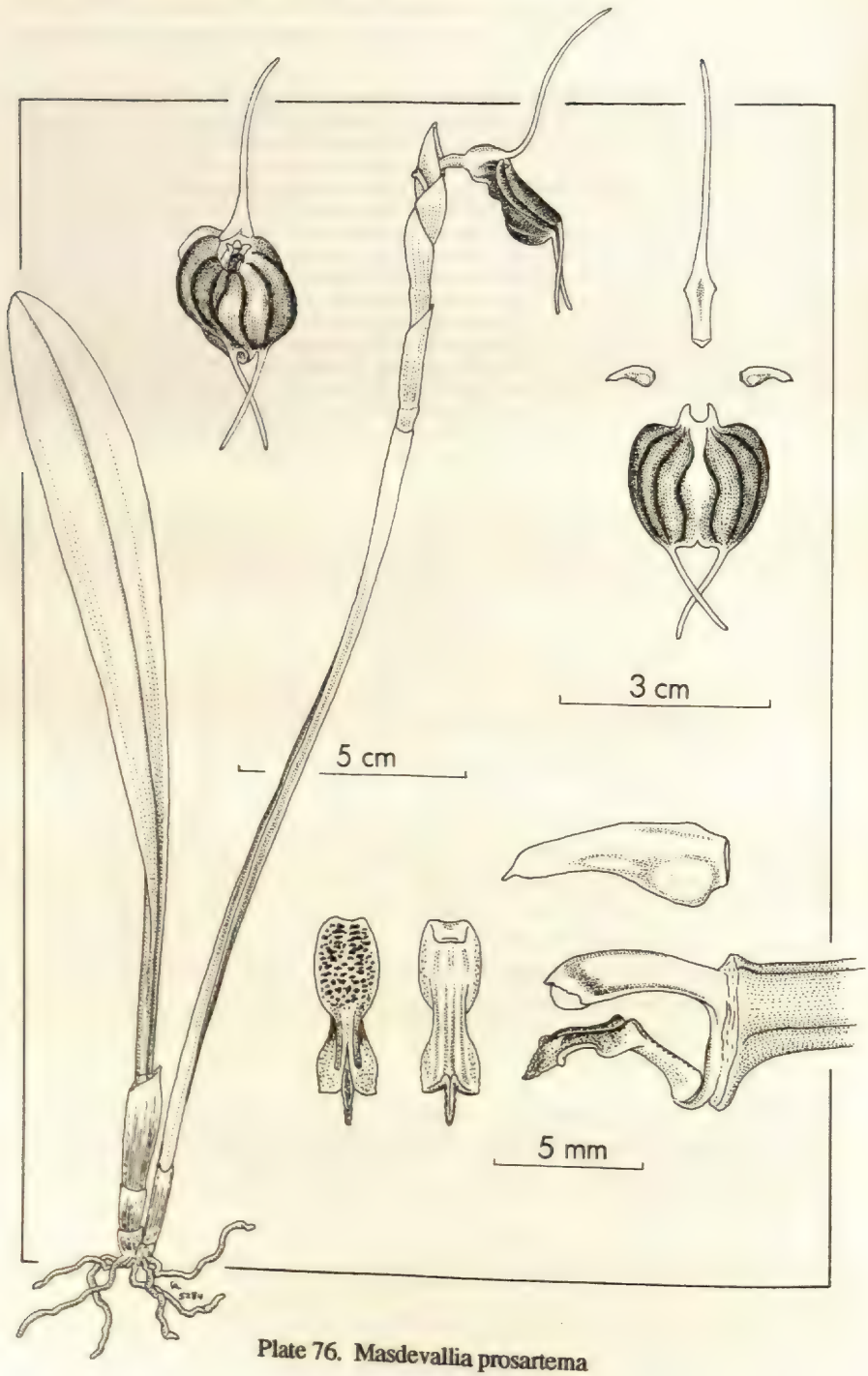


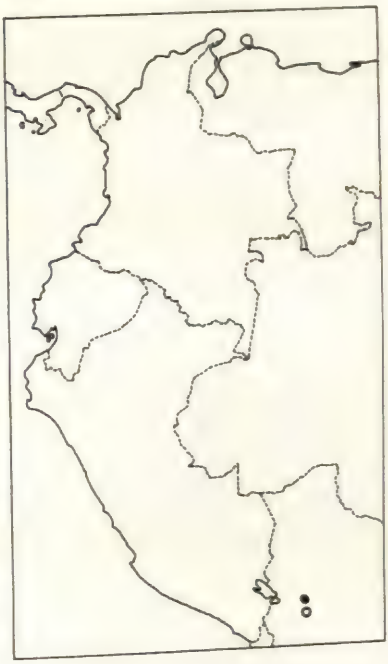

Plate 76. Masdevallia prosartema

**Masdevallia receptrix** Luer & Vásquez, Phytologia 54: 383, 1983.

Ety.: From the Latin *receptor, receptrix*, "a receptor," referring to the concavity of the synsepal that accommodates the apex of the lip.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-4.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-15 cm long including an indistinct petiole 2-3 cm long, the blade elliptical-oblong, 1.8-2.7 cm wide, obtuse to rounded at the apex, gradually narrowed below to the subpetiolate base. **Inflorescence** a congested, successively few-flowered raceme, borne by a stout, erect, triquetrous peduncle 10-12 cm long, with a bract at the base, from the base of the ramicaul; floral bracts tubular, imbricating, 15 mm long; pedicel 10-13 mm long; ovary 6 mm long; **sepals** rigidly fleshy, brown, yellow toward the base, carinate, with the margins more or less revolute, glabrous externally, microscopically pubescent within, the dorsal sepal ovate, 15 mm long, 10 mm wide, connate to the lateral sepals for 5 mm to form a gaping, sepaline cup, the apex subacute, contracted into an erect, clavate, yellow tail 3.5 cm long, 2 mm thick in the distal half, the lateral sepals ovate oblique, connate 13 mm into a broadly ovate, bifid lamina, 20 mm long, 30 mm wide expanded, forming a conical cavity above the mentum with the column-foot, the apices obtuse to subacute, contracted into slender, descending tails 16 mm long; **petals** yellow, oblong, 7 mm long, 2 mm wide, the apex brown, unequally bidentate, the labellar half with a longitudinal callus ending in a low, rounded process above the base; **lip** tan, marked with dark brown, oblong-pandurate, arcuate, 7 mm long, 3 mm wide, with oblique, obtuse, marginal folds above the middle, with the disc shallowly sulcate, the epichile slightly verrucose, ovate, obtuse, deflexed, the hypochile oblong, truncate, hinged on the end; **column** yellow, semiterete, 5 mm long, the foot equally long with a short, incurved extension.

BOLIVIA: **La Paz**: without specific locality, probably collected in the Sud Yungas by Dino Menato of Chulumani, cultivated by B. Würstle in Spielberg, Germany, Apr. 1982, *C. Luer 8144* (Holotype: SEL); Nor Yungas, epiphytic in cloud forest west of Coroico, alt. 1800 m, collected by R. Vásquez, C. & J. Luer, 27 Jan. 1983, cultivated at Colomborquídeas, Jan. 1984, *R. Escobar 3199* (SEL); same collection, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13230* (MO).



This species is rare and apparently endemic in the Yungas of northern Bolivia. It was first discovered by the late Dino Menato, of Chulumani in the Sud Yungas. Vegetatively similar to other medium-sized plants of the section, *M. receptrix* is distinguished by the brown, widely spread flowers with more or less recurved margins of the expanded synsepal with the erect tail of the dorsal sepal thickened-clavate. The apex of the arcuate lip fits into a conical cavity above the base of the synsepal.

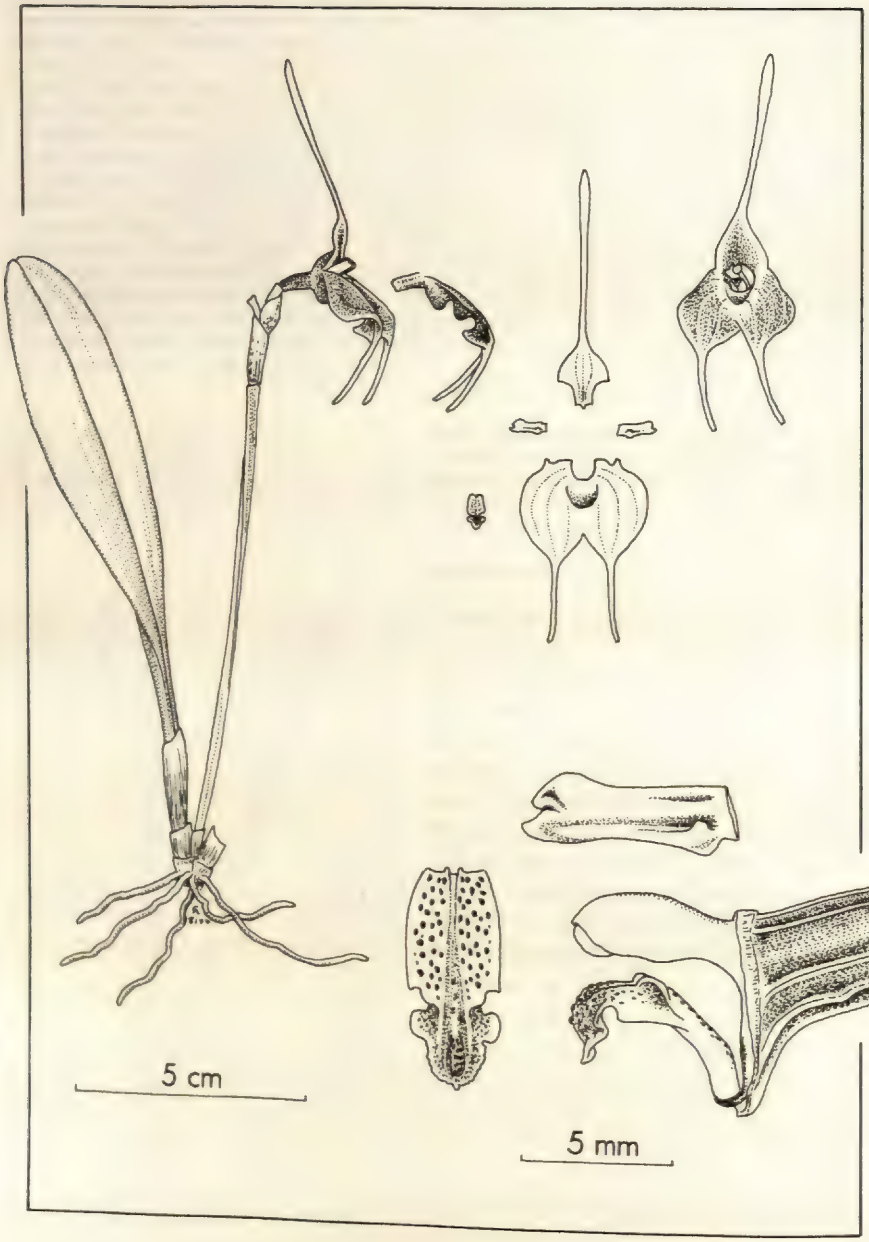



Plate 77. Masdevallia receptrix

**Masdevallia recurvata** Luer & Dalström, Lindleyana 11: 182, 1996.

Ety.: From the Latin *recurvatus*, "recurved," referring to the sepaline tails.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, subpetiolate, 7-9 cm long including a petiole 1-2 cm long, the blade elliptical, subacute, 1.2-1.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a succession of single flowers, produced in a congested raceme, borne by a stout, erect, triquetrous peduncle 10-11 cm long, with a thin bract at the base, from near the base of a ramicaul; floral bract tubular, 12-14 mm long; pedicel 12-15 mm long; ovary 6 mm long; **sepals** red-purple, orange toward the base, the dorsal sepal obovate, 10-11 mm long, 8 mm wide at the junction with the lateral sepals, connate to the lateral sepals for 6 mm to form an oblique, campanulate tube, the free portion ovate, obtuse, contracted into a stout, recurved tail 16-19 mm long, the lateral sepals ovate, oblique, 18 mm long, connate 14 mm into a concave lamina 20 mm broad expanded, forming a mentum with the column-foot, the apices subacute, contracted into stout, recurved tails 7-8 mm long; **petals** white, oblong, with the apex apiculate, 6 mm long, 1.5 mm wide, with a low, longitudinal callus above the labellar margin; **lip** oblong-subpandurate, 7 mm long, 2.8 mm wide expanded, constricted above the middle, overlaid with wing-like marginal folds, the epichile suborbicular, deflexed with recurved margins, the apex rounded, apiculate, the disc with a pair of low, longitudinal calli, the hypochile oblong, featureless, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with a short, free extension.

PERU: Without specific locality, imported among roots of *M. cinnamomea* from M. Arias, 1995, cultivated in Halmstad, Sweden, by J. Sönnemark, *S. Dalström 2270* (Holotype: MO), C. Luer illustr. 18565.

This species is uncommon and apparently endemic, probably in the department of Amazonas in northern Peru. The only plant known grew from among the roots of an imported plant of *M. cinnamomea* cultivated by Jan Sönnemark in Halmstad, Sweden.

Vegetatively similar to other medium-sized species of the section, *M. recurvata* is distinguished by an orange and purple flower produced successively in a subdensely flowered raceme held above the leaves. The sepaline tails are relatively thick and recurved, those of the lateral sepals being much shorter than the tail of the dorsal sepal. The petals are broad and callous on the lower half. The marginal folds of the lip are obtuse and wing-like. The epichile is rounded and convex.

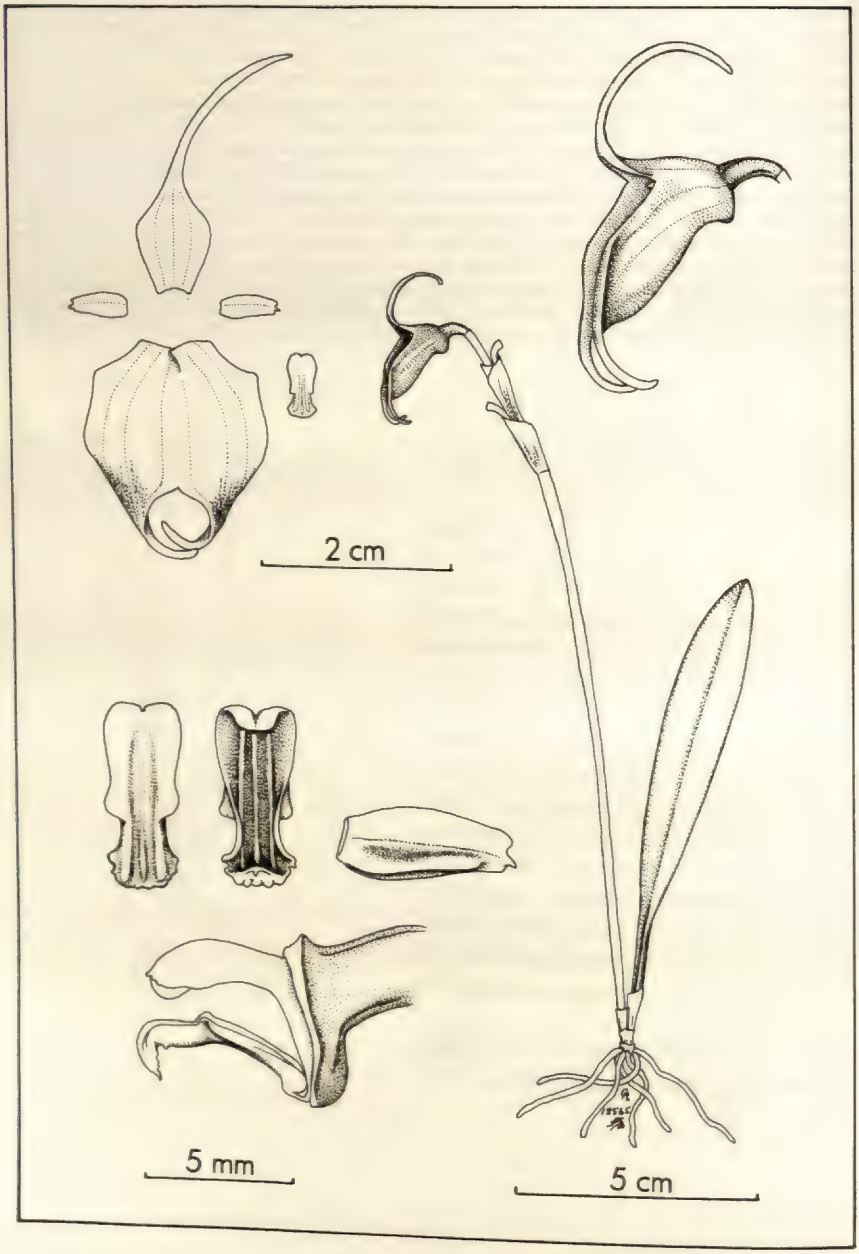



Plate 78. Masdevallia recurvata

**Masdevallia revoluta** Königer, Arcula 2: 40, 1994.

Ety.: From the Latin *revolutus*, "revolute," referring to the sides of the synsepal.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 9-11 cm long including the petiole 2-3 cm long, the blade elliptical, subacute to obtuse, 2-2.3 cm wide, narrowly cuneate below into the petite. **Inflorescence** a very congested, successively several-flowered raceme up to 5 mm long, borne by a slender, ascending-erect, triquetrous peduncle, 20-25 cm long, with a bract at the base, from low on the ramicaul; floral bracts inflated, imbricating, 8-10 mm long; pedicel 5-7 mm long; ovary 5 mm long; **sepals** fleshy, rigid, dull green, suffused and mottled with purple, the dorsal sepal ovate, 30 mm long including the tail, 7.5 mm wide, the free portion triangular, acuminate into an erect, semiterete tail 1.5 mm wide, connate to the lateral sepals for 5 mm to form a short, cylindrical, sepaline tube, the lateral sepals microscopically verrucose within, connate 18 mm into an ovate-oblong lamina 27-30 mm long, 17-18 mm wide, with recurved sides, bifid at the apex into subacute, triangular apices ca. 5 mm long, with a shallow concavity above a short, obtuse mentum below the column-foot; **petals** greenish white, oblong, 5.5 mm long, 1.5-2 mm wide, the labellar margin with a longitudinal callus ending in a smooth, rounded callus at the base, the apex acute, apiculate, subtridentate; **lip** yellow, cartilaginous, arcuate, 5.5 mm long, 2.75 mm wide, with flat, marginal folds near the middle that continue forward onto the epichile as carinae flanking a midline sulcus, the sulcus containing a narrow midline carina ending at the apex, the apex obtusely acute, deflexed, the hypochile sulcate below the middle, continuous with the sulcus above the middle, the base thick, truncate, shallowly cleft, hinged beneath; **column** white, semiterete, 4.5 mm long, the foot thick, 3 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: Valle del Río Ubano, Sucua, alt. 850 m, collected by J. Portilla, without date, cultivated in Munich, Germany, by *W. Königer WK-35* (Holotype: M; clonotypes: K, QCA, Herb. H. Königer); Río Santiago, alt. 200 m, collected by J. Portilla, 1995, *A. Hirtz 6103* (MO), C. Luer illustr. 17755.

This species occurs uncommonly in lowland eastern Ecuador. It is distinguished by the slender, triquetrous peduncle that far surpasses the coriaceous, elliptical leaves. The raceme is very congested, several flowers being produced successively within a 5-millimeter-long rachis. The sepals form a short tube with the tail of the dorsal sepal thick, terete, and erect. The synsepal is broad with recurved margins, and with laterally deflexed, triangular apices. The lip is arcuate and broadly oblong with flat marginal folds. The epichile is traversed with three parallel carinae, and the apex is decurved, obtuse, and abruptly acuminate. The floral details differ considerably from those illustrated for Königer.

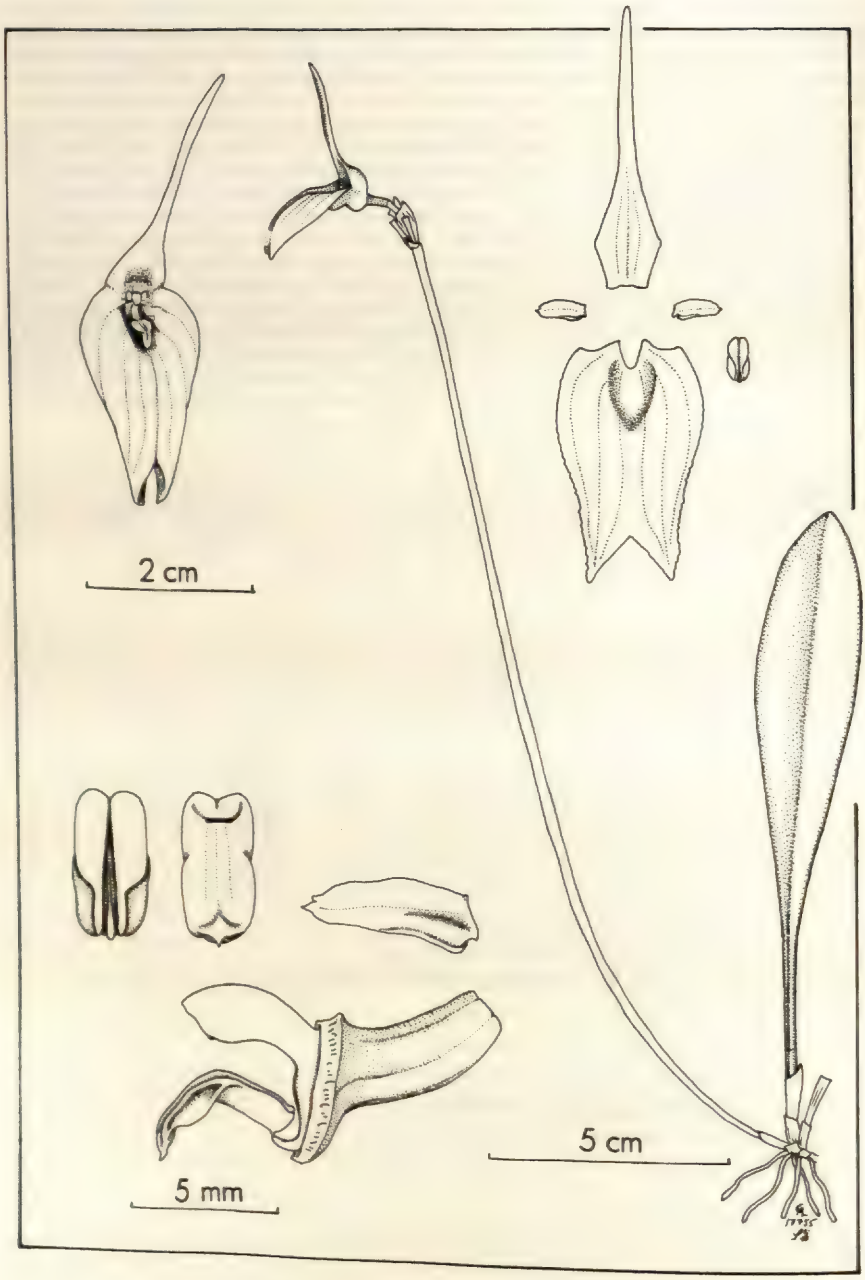



Plate 79. Masdevallia revoluta

**Masdevallia richardsoniana** Luer, Lindleyana 3: 55, 1988.

Ety.: Named in honor of the late Donald "Don" Richardson (1906-1984) of Manhassett, New York, renowned for his knowledge of orchids, particularly of the genus *Masdevallia*.

**Plant** medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 4-7.5 cm long including the petiole 1-1.5 cm long, 0.8-1.1 cm wide, the base gradually narrowed into the petiole. **Inflorescence** a solitary flower, sometimes followed by a second, borne by a slender, erect, triquetrous (sometimes terete) peduncle, 2-4 cm long, with a bract at the base, from low on the ramicaul; floral bract 7-10 mm long; pedicel 11-12 mm long; ovary 3 mm long; **sepals** fleshy, yellow-orange, suffused with purple medially, glabrous, the dorsal sepal obovate, subacute, 12 mm long, 7 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical sepaline tube lightly constricted near the middle, the apex contracted into a thickened, orange tail ca. 3 cm long, the lateral sepals ovate, acute, oblique, 20 mm long, 7 mm wide, connate to each other for 5 mm, forming a mentum with the column-foot, the apices contracted into tails similar to that of the dorsal sepal; **petals** white, cartilaginous, oblong, obtuse, retuse, 8 mm long, 2 mm wide, with a broad, longitudinal callus on the labellar half ending in a rounded swelling above the base; **lip** brown, oblong, 7 mm long, 3 mm wide, with marginal folds above the middle, the disc shallowly channeled, the epichile ovate, obtuse, the hypochile oblong, truncate, hinged from beneath; **column** white, semiterete, 5 mm long, the foot thick, 3 mm long, with an incurved extension.

PERU: without locality, purchased from a collector in Peru in 1983 by David Allison, cultivated by Ted Linder at Great Lakes Orchids, Romulus, Michigan, 14 Dec. 1986, *C. Luer 11637* (Holotype: MO); same acquisition, flowers larger, *C. Luer 11639* (MO); **Junín**: Chanchamayo Valley, alt. 5,900 ft., collected by D. & A. Allison in 1982, cultivated at Species West, Kent, WA, Jan. 1990, *C. Luer 14565* (MO).

This attractive, floriferous species is uncommon and apparently endemic in north-central Peru. It is characterized by the small habit and colorful orange and purple flowers borne by relatively short peduncles. Numerous peduncles produce a single flower simultaneously, but occasionally a second flower follows. The peduncles are slender and usually triangular in cross section, especially above near the raceme. Occasionally they are terete. A similar occurrence is seen in *M. infracta*, and *M. sprucei*.

The sepals are fleshy with the acute apices drawn into somewhat thickened, proportionately long tails. The petals are callous on the lower half and the epichile of the lip not verrucose.

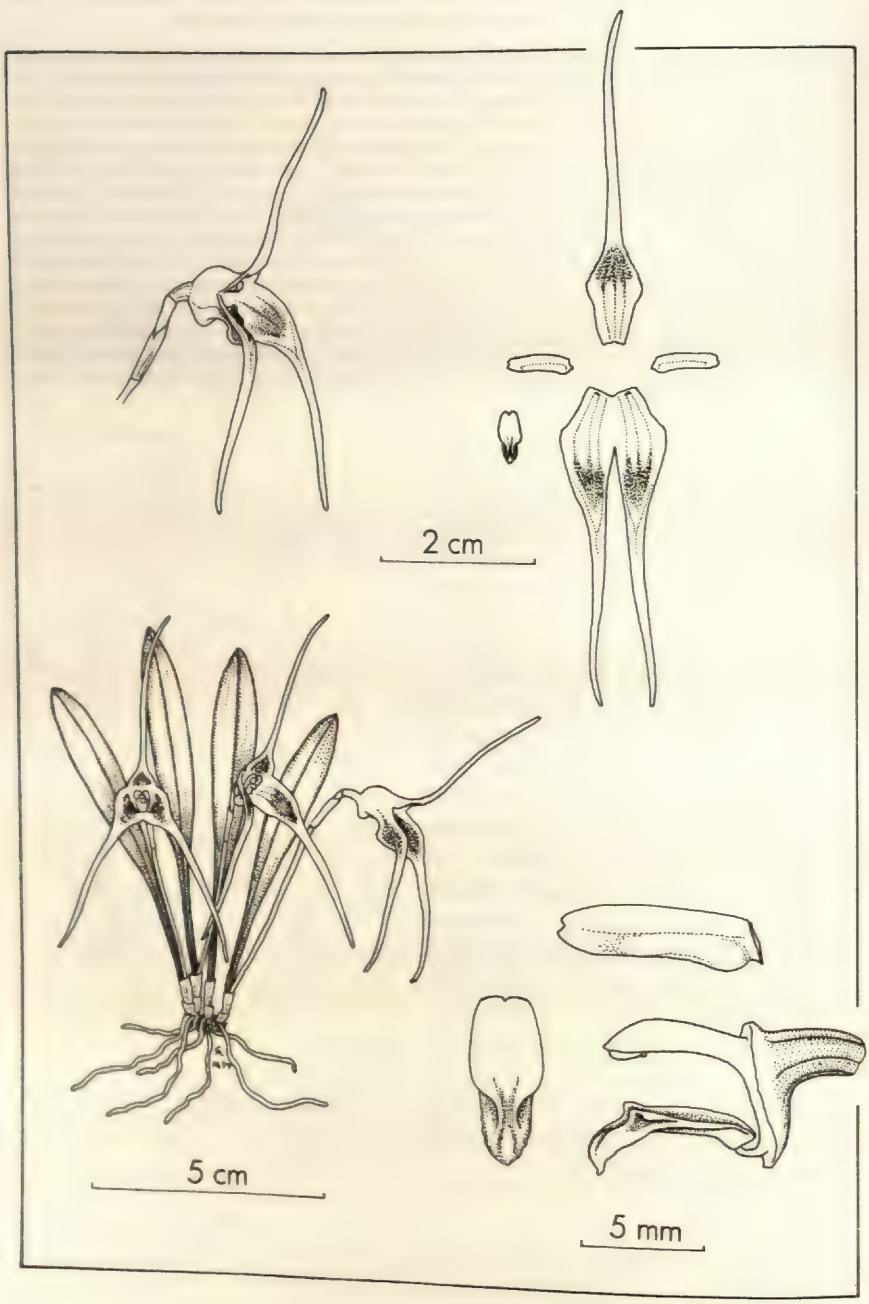



Plate 80. Masdevallia richardsoniana

**Masdevallia sanctae-fidei** Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 17: 414, 1921.

Ety.: Named for Santa Fé de Bogotá, Colombia, near where the species was discovered.

Syn.: *Masdevallia dispar* Luer, Phytologia 42: 458, 1979.

Ety.: From the Latin *dispar*, "different," in allusion to the species being different from *M. lata* with which *M. sanctae-fidei* was identified in *Venezuelan Orchids Illustrated.*

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-10 cm long including an indistinct petiole 1-2.5 cm long, the blade narrowly obovate, subacute, 1-1.6 cm wide, gradually narrowed below to the channeled base. **Inflorescence** a congested, successively few-flowered raceme, borne by a slender, erect to suberect, triquetrous peduncle 6-8 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 8-10 mm long; pedicel 13-16 mm long; ovary 5 mm long; **dorsal sepal** yellow or orange, obovate, subverrucose within, 7 mm long, 4 mm wide, connate to the lateral sepals for 5 mm to form a short, cylindrical tube, the free portion triangular, subacute, contracted into a slender, erect tail 3 cm long; **lateral sepals** dark purple, microscopically verrucose within, obovate, oblique, connate 15 mm into a broad lamina, 20 mm long, 15 mm wide together forming a shallow, secondary mentum, the free portions obtuse, contracted into slender tails up to 12 mm long; **petals** white, oblong, 5 mm long, 1.5 mm wide, the apex obtuse, obscurely lobed, the labellar margin with a low, longitudinal carina ending in a low, rounded callus at the base; **lip** cream, diffusely dotted with purple, oblong-subpandurate, 5 mm long, 1.5 mm wide, with oblique marginal folds above the middle, the epichile broadly ovate, obtuse, verrucose, with erose, revolute margins, the hypochile oblong, the base sloping downward, hinged on the end; **column** green, suffused with rose, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

COLOMBIA: **Cundinamarca**: near Santa Fé de Bogotá, *Man 1015* (Holotype: W; Isotype: HBG); "Bogotá," cultivated by F. Sander & Co., St. Albans, 1890, collected by *Mansfield s.n.* (K); Enllanada, alt. 500 m, *H. Wagener s.n.* (W); near Villavicencia, alt. 1600-1800 m, collected by E. Zeller, Feb. 1982, cultivated near Ulm, Germany, 25 Sept. 1982, *C. Luer 8148* (SEL). **Norte de Santander**: región del Sarare, Hoya del Río Cubugón, El Indio, alt. 420-480 m, 13-17 Nov. 1941, *J. Cuatrecasas 13100* (US). **Boyacá**; north of Támara, alt. 1000 m, 4 May 1937, *J. Renz 3594* (BAS). **Meta**: Río Ocoa, south of Villavicencia, alt. 600 m, June 1937, *J. Renz 3602* (BAS). VENEZUELA: **Táchira**: between Rubio and La Mulera, Cerro Capote, alt. 1350 m, 11 Oct. 1953, *J. Renz 8022* (BAS); Quebradas Los Cánitos, road to Fundación, alt. 900 m, collected by R. Mejía, 1972, cultivated by O. Arango at Estrella, 2 Oct. 1977, *C. Luer 1887* (holotype of *M. dispar*: SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13271* (MO); Zumbador, alt. 1600 m, 1972, cultivated at El Hatillo, 23 July 1982, *G.C.K. Dunsterville et al. 1236* (SEL); Uribante, Empressa Las Cuevas, alt. 900 m, 7 July 1983, *H. van der Werff & A Gonzáles 5016* (MO).

In *Venezuelan Orchids Illustrated* this species was misidentified as the Central American *M. lata*. *Masdevallia sanctae-fidei* is distributed mostly on the southern slopes of the Andes of Colombia and adjacent Venezuela at moderate to low altitudes. It is distinguished by a congested, few-flowered raceme of successive flowers with a short sepaline tube, and a broadly expanded synsepal with close tails shorter than the tail of the dorsal sepal. The basal end of the lip slopes backward to the attachment to the column-foot.

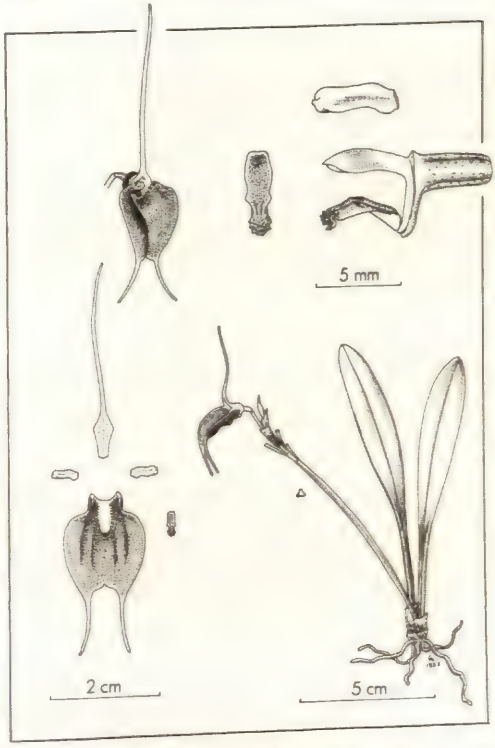



Plate 81. Masdevallia sanctae-fidei

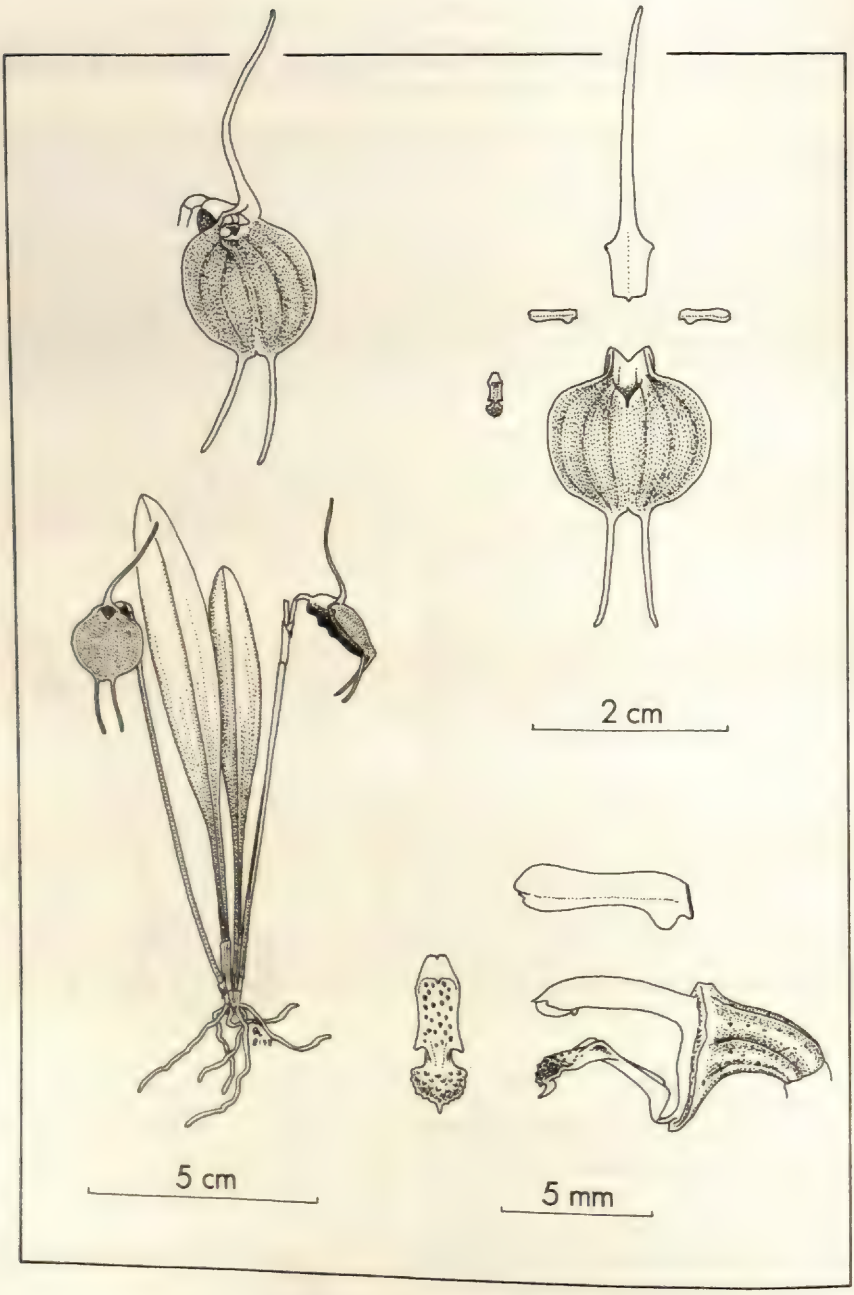



Plate 82. Masdevallia sanctae-fidei

**Masdevallia sanguinea** Luer & Andreetta, Phytologia 47: 69, 1980.

Ety.: From the Latin *sanguineus*, "blood-red," in reference to the color of the lip and column.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, 6-9 cm long, 1.5-1.9 cm wide, cuneate below into a shortly petiolate base. **Inflorescence** a congested raceme of single, successive, comparatively large, red-purple flowers borne by a stout, triquetrous peduncle 9-10 cm long, with a bract at the base, from near the base of the ramicaul; floral bracts papery, imbricating, 12 mm long; pedicel 8-9 mm long; ovary 5-6 mm long; **sepals** glabrous externally, microscopically verrucose within, the dorsal sepal obovate, 15-18 mm long, 10 mm wide, connate to the lateral sepals for 10-13 mm to form a cylindrical sepaline tube, the free portion triangular, the subacute apex contracted into a thick, terete, antrorse tail ca. 3 cm long, red above, yellow below, the lateral sepals connate 27-29 mm into a broad, bifid lamina 25 mm wide, the acute apices approximate, contracted into 1 cm long, terete tails, 10 mm long; **petals** white, suffused with purple, oblong, 11 mm long 3.5 mm wide, the apex tridenticulate, with a longitudinal callus above the labellar margin, terminating in a rounded callus above the base; **lip** dark red-purple, oblong, 16 mm long, 6.5 mm wide, the apex obtuse with serrulate margins and a midline callus, the base subcordate, hinged beneath, the disc with a pair of low carinae extending forward from a pair of marginal folds below the middle; **column** red, semiterete, 10 mm long, with a foot 5 mm long and a short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest near Río Calagrás, alt. 1600 m, collected by A. Andreetta & M. Portilla, cultivated in Cuenca, 27 Sept. 1980, *C. Luer 5451* (SEL).

This rare species is apparently endemic in southeastern Ecuador. It is very closely allied to *M. vargasii*, and could be treated as a variation of that species. It is distinguished from the latter by the shorter, stouter peduncle that is longer than the leaves; the deep red-purple sepals instead of yellow; the tridentate petals; and the large, purple lip without the usual three parallel, deep purple stripes of *M. vargasii*.

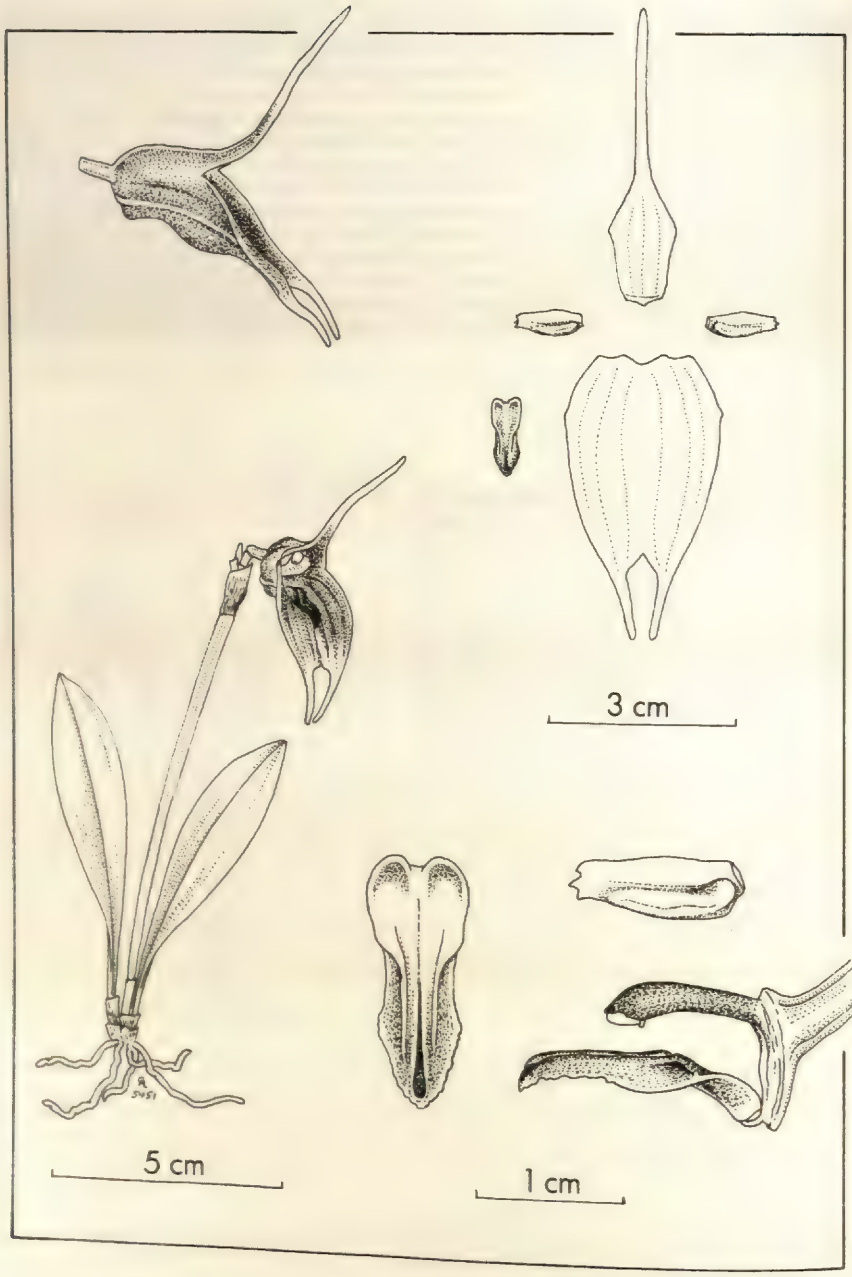



Plate 83. Masdevallia sanguinea

**Masdevallia sceptrum** Rchb.f., Bonplandia 1: 283, 1854.

Ety.: From the Latin sceptrum, "a royal staff," in allusion to elegant inflorescence.

Syn.: *Masdevallia urostachya* Rchb.f., Gard. Chron. n.s., 17: 765, 1882.

Ety.: From the Greek *urostachys*, "a tailed spike," referring to the appearance of the inflorescence.

Syn.: *Masdevallia schlimii* var. *sceptrum* (Rchb.f.) Woolw. Monogr. Masdevallia t. 47, 1896.

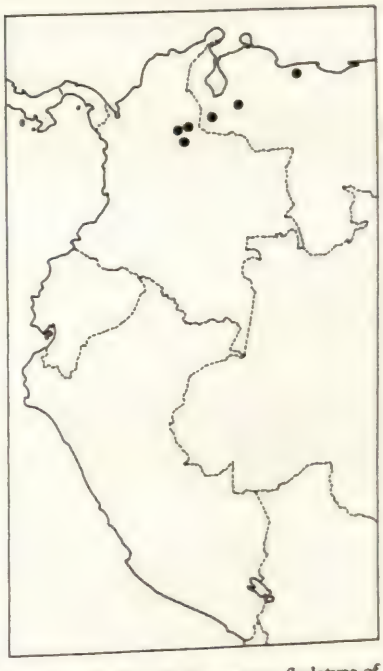
Syn.: *Masdevallia rechingeriana* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 424, 1921.

Ety.: Named for Dr. K. Rechinger, Austrian botanist and friend of Kränzlin.

**Plant** large, robust, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1.5-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, rigid, thickly coriaceous, 8-20 cm long including the petiole 1-3 cm long, the blade elliptical-obovate, subacute to obtuse, 1.5-4 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a loose to congested, simultaneously few- to several-flowered raceme of large, showy flowers, borne by an erect, triquetrous peduncle 15-30 cm long, with a bract at the base, from the base of a ramicaul; floral bract thin, tubular, 12-20 mm long; pedicel 12-25 mm long; ovary 5-6 mm long; **sepals** glabrous, minutely verrucose within, the dorsal sepal yellow, suffused with brown above the middle, elliptical-obovate, 10 mm long, 7 mm wide, connate to the lateral sepals for 6-7 mm to form a short, sepaline tube, the apex obtuse, contracted into an erect, slender, yellow tail 4-6.5 cm long, the lateral sepals deep red-brown, ovate, oblique, 20 mm long, 9-10 mm wide, connate 8-15 mm to form a shallow mentum, the apices subacute, contracted into slender, yellow tails 4-6 cm long; **petals** greenish white, oblong, 6-7 mm long, 2-3 mm wide, the apex acute, the labellar half with a thick longitudinal callus; **lip** yellow, diffusely dotted with red-purple, oblong-subpandurate, 6-7 mm long, 2-3 mm wide, with erect, oblique, marginal folds near the middle, the epichile ovate, acute, shortly acuminate, with a rounded keel on the undersurface, the hypochile oblong, subcordate, hinged beneath; **column** green with a thin, purple margin, semiterete, 5 mm long, the foot 3 mm long, thick, with a short, incurved extension.

COLOMBIA: **Santander**, old province of Ocaña; near Pamplona, La Baja, alt. 2600 m, Jan. 1849, *L. Schlim 1200* (Holotype: W; Isotype: BR); same locality, alt. 8500 ft., 1848, *L. Schlim 741* (K); same locality, near the La Baja gold mines, alt. 2500 m, 20 May 1982, *C. Luer, R. Escobar & D. Portillo 7902* (SEL); between Duitama and Charalá, alt. 3000 m, 6 Jan. 1941, *J. Renz 3578* (BAS); scrub forest east of Bucaramanga toward Berlin, alt. 3300 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10172* (MO). **Norte de Santander**: Cerro de Oroque, Jurisdicciones, alt. 3700-3900 m, 22 July 1974, *H. García-Barriga & R. Jaramillo 20672* (AMES, COL); Páramo de Jurisdicciones, epiphytic in scrub forest, alt. 3150 m, 30 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7645* (SEL); same area, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10343* (MO); below Alto de San Francisco, alt. 2500 m, 6 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7765* (SEL).

VENEZUELA: **Mérida**: Libertador, trail to Laguna El Suero from La Mucuy, 19 May 1988, *L.J. Dorr & L.C. Barnett 5188* (NY); Valle de San Javier, alt. 2550-2670 m, 10 June 1997, *J. Schneider 881* (FR). **Táchira**: between Revanche and Las Delicias, alt. 2700 m, 9 May 1951, *J. Renz 6910* (BAS); cloud forest around the headwaters of Río Quinimarí, alt. 2400 m, *J.A. Steyermark, G.C.K. & E. Dunsterville 101245* (VEN). **Aragua**: near Tovar, *Arnold s.n.* (holotype of *M. rechingeriana*: W). Without locality, collected ca. 1852 by *H. Wagener s.n.* (holotype of *M. urostachya*: W).



This robust species was first collected near the gold mines at La Baja near Pamplona on the Funck and Schlim expedition to New Granada between 1846 and 1852. It still exists there today sympatric with *M. buccinator*.

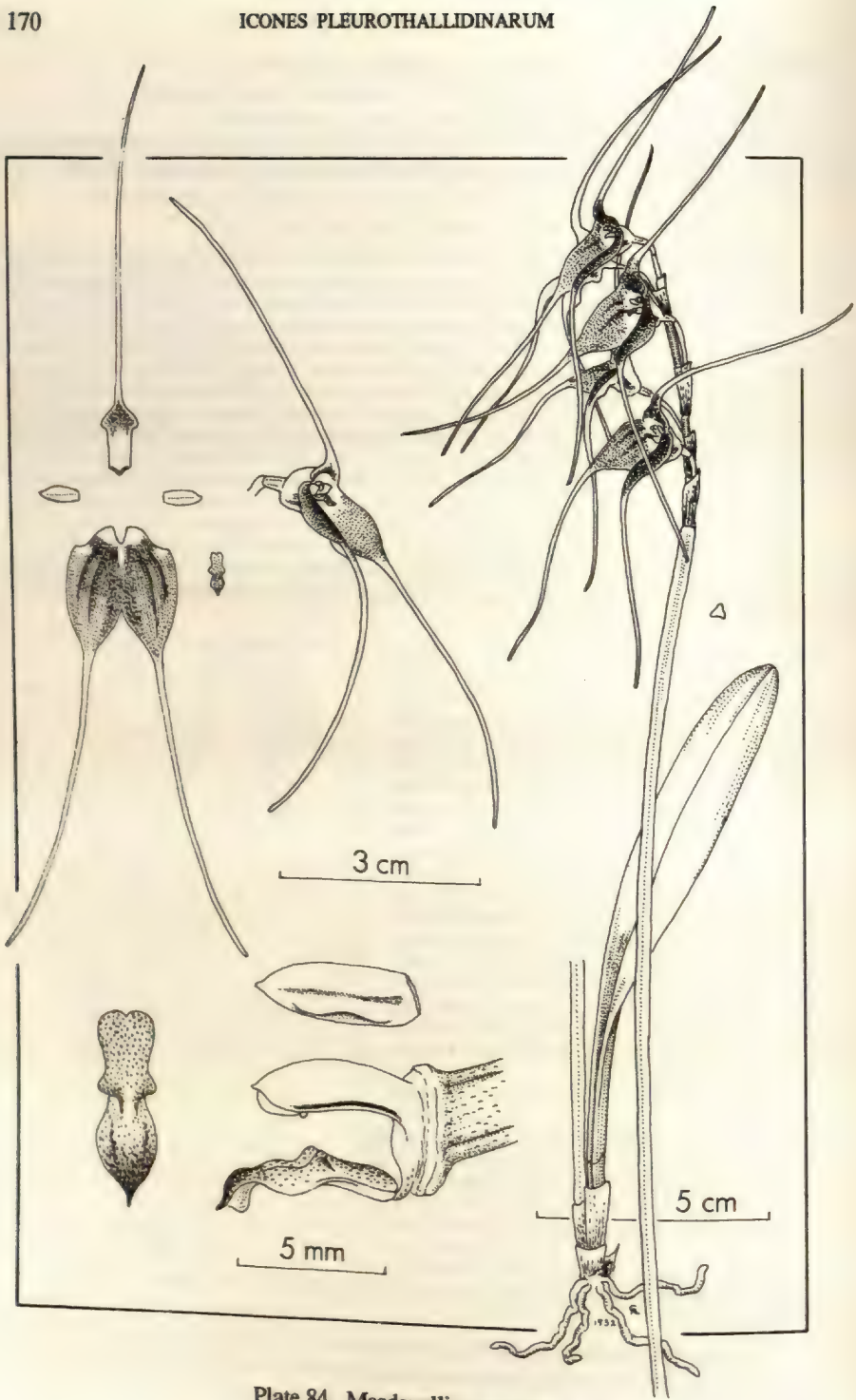



Plate 84. Masdevallia sceptrum

*Masdevallia sceptrum* is very closely allied to *M. schlimii*. The two species have been confused by most authors since they were first discovered. Dried herbarium specimens appear deceptively similar when details of the petals and lips are obscured. The shape of the peduncle, whether or not it be round or three-angled in cross section, is often difficult to determine when dried. However, the presence of a bract near the middle of the peduncle would indicate that the peduncle had been terete.

*Masdevallia sceptrum* is most easily distinguished from *M. schlimii* by the triquetrous peduncle. The raceme is often congested, but noticeable distances between flowers often occur irregularly in the raceme, often exposing the rachis. The raceme of *M. schlimii* is usually evenly and loosely flowered. The flowers differ mainly in the petals and lip, the petal of *M. schlimii* bearing a basal process, and the lip of *M. schlimii* with a proportionately longer hypochile. Beneath the apex of the lip of *M. sceptrum* is a prominent keel that is absent from the lip of *M. schlimii*.

If a clone of *M. sceptrum* were to occur with a terete peduncle, it would be difficult to distinguish from *M. schlimii*. It is known that some successively flowered species, i.e., *M. infracta*, a species characterized by triquetrous peduncles, is occasionally found with terete peduncles.

Kränzlin described *M. rechingeriana* from only two, identical flowers, supposedly collected near Colonia Tovar. Neither peduncle nor any vegetative parts of the plant are present on the herbarium sheet of the type-specimen at W (Vienna) in the Reichenbach herbarium. The two flowers have relatively short sepaline tubes, with synsepals expanded beyond the tube and connate to above the middle, approximate apices, and tails longer than the blades. Kränzlin also described a keel below the apex of the lip. The fact that there are two identical flowers leads me to believe that the inflorescence bore them simultaneously, and indeed the flowers look exactly like those of *M. sceptrum*, which bears a distinct keel below the apex of the lip. *Masdevallia sceptrum* is found in the nearby Cordillera of Mérida and adjacent Colombia.

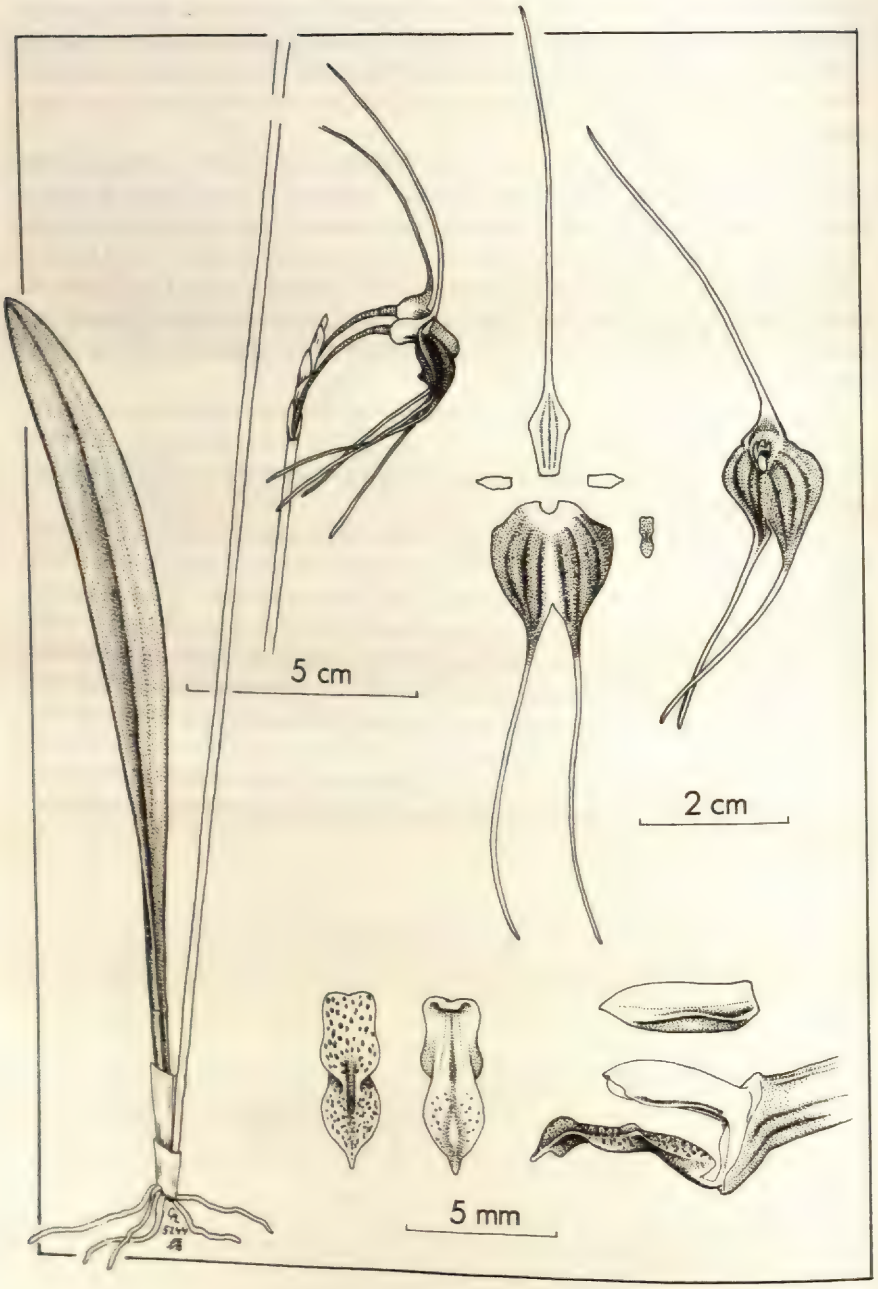



Plate 85. Masdevallia sceptrum

**Masdevallia schudelii** Luer, Monogr. Syst. Bot. 76: 157, 1999.

Ety: Named for George Schudel, president of the Pleurothallid Alliance, who obtained and cultivated this species.

**Plant** medium in size, epiphytic, caespitose; roots fleshy. Ramicauls erect, slender, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 10-12 cm long including an indistinct petiole ca. 2 cm long, the blade narrowly elliptical-obovate, subacute, 1.5-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a subcongested, few-flowered raceme of successive flowers, borne by a slender, erect, triquetrous peduncle 14 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, 14-15 mm long; pedicel 15 mm long; ovary green, 6 mm long; **sepals** glabrous externally, microscopically verrucose within, the dorsal sepal light yellow, the blade ovate, acuminate into an erect, yellow tail, the entire length 40-47 mm long, 7 mm wide, connate to the lateral sepals for 4 mm to form a short, cylindrical, gaping tube, the lateral sepals dark purple, connate 25 mm into an expanded, bifid synsepal ca. 25 mm long, 17 mm wide, the apices approximate, acute, acuminate into slender, yellow tails 1.5-2 cm long; **petals** white, more or less oblong, 7 mm long, 2 mm wide above the base, the apex subtridentate, with a longitudinal carina on the labellar half, terminated with a low, obtuse process above the base, obscurely angled on the upper margin above the base; **lip** white, diffusely dotted with purple, oblong-subpandurate, 6 mm long, 2 mm wide, with broad, obtuse, marginal folds near the middle, the epichile ovate, obtuse, microscopically subverrucose, concave below with a small, subapical callus, the disc shallowly channeled between the folds, the hypochile oblong, subtruncate, hinged on the end; **column** greenish white, semiterete, 5.5 mm long, the foot 2.5 mm long including a short, incurved extension.

ECUADOR: Without collection data, obtained from J. Portilla, flowered in cultivation in Middleburg, FL, March 1998, by *G. Schudel s.n.* (Holotype: MO), C. Luer illustr. 18786. **Morona-Santiago**: near Macas, alt. 1400 m, collected by *J. Portilla 038* (MO).

This species is apparently endemic in eastern Ecuador. It is characterized by a slender, triquetrous peduncle that slightly exceeds the narrow leaf in length. The flowers in the few-flowered raceme are not crowded, the rachis being visible between floral bracts. The sepaline tube is very short and gaping, the tail of the dorsal sepal is erect, and the apices of the expanded synsepal are contiguous with crossing tails. The longitudinal callus of the petal ends in a low, conical protuberance.

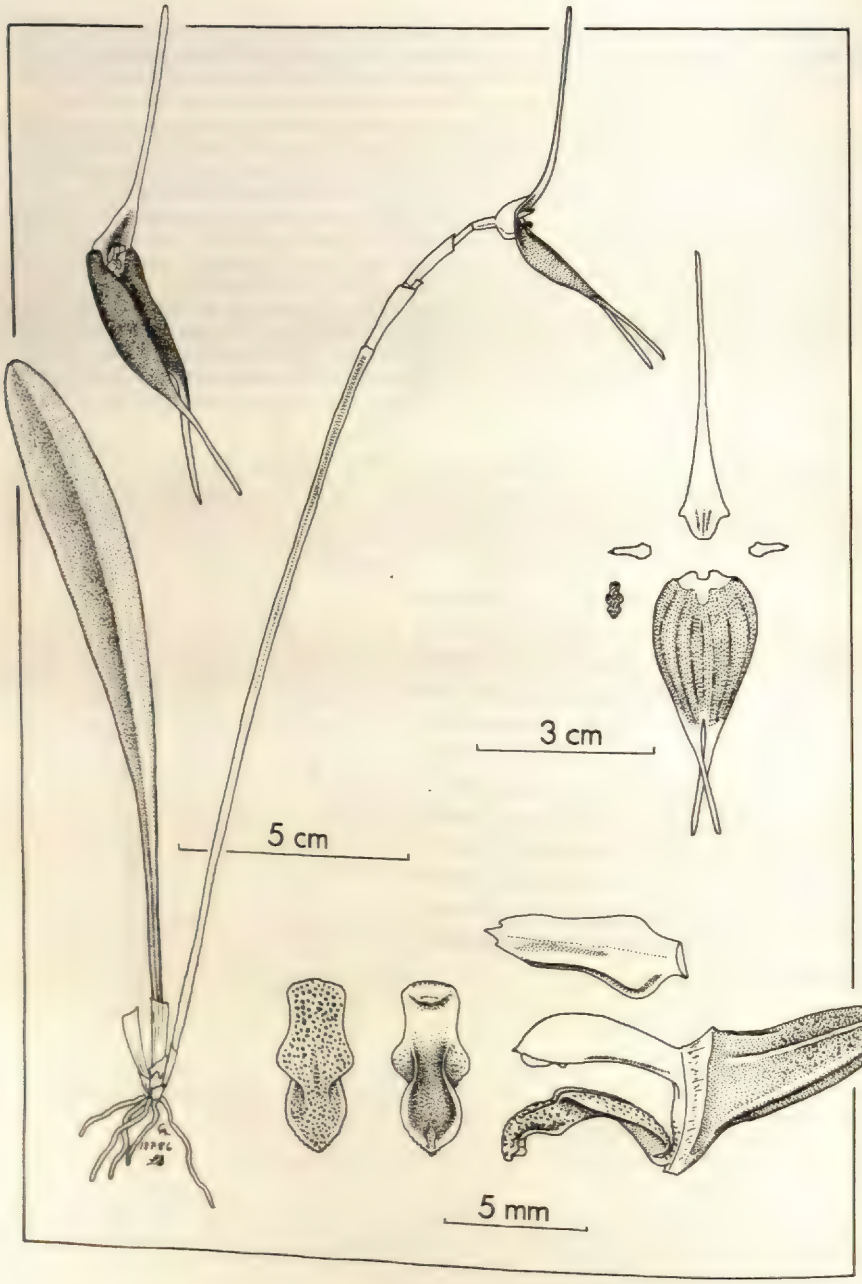


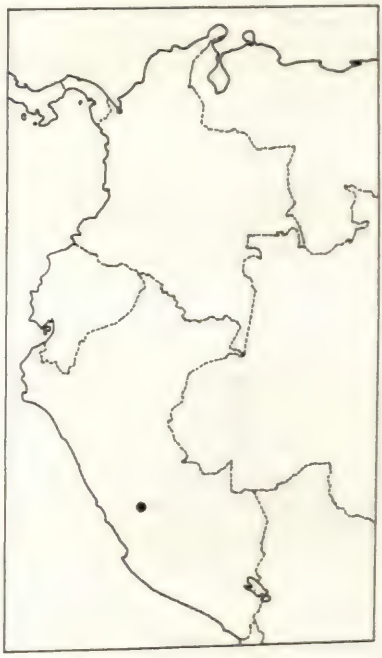

Plate 86. Masdevallia schudelii

**Masdevallia scitula** Königer, Die Orchidee 32: 69, 1981; emend. 36: 87, 1985.

Ety: From the Latin *scitulus*, "pretty," in reference to the flower.

**Plant** medium in size, epiphytic, caespitose; roots fleshy. Ramicauls erect, slender, 2-2.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, 8-14 cm long including the indistinct petiole 1-2 cm long, the blade narrowly elliptical, subacute, 1.2-1.6 cm wide, cuneate below into the slender, subpetiolate base. **Inflorescence** a congested, few-flowered raceme of successive flowers, uncommonly 2 flowers occurring simultaneously, borne by a slender, erect, triquetrous peduncle 9-11 cm long, more or less flecked with purple, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 9-13 mm long; pedicel 13-16 mm long; ovary green, speckled with purple, 4.5 mm long; **sepals** glabrous externally, minutely verrucose-spiculate within, the dorsal sepal yellow, obovate, the blade 10 mm long, 4.5 mm wide, connate to the lateral sepals for 4.5 mm to form a cylindrical, sepaline tube, the acute apex contracted into an erect, slender, yellow tail 3-3.5 cm long, 1 mm wide, the lateral sepals connate 11-12 mm into a broadly expanded, bifid synsepal 13 mm long, 16 mm wide, the apicessubacute to obtuse, contracted into slender, yellow tails ca. 2 cm long; **petals** white, more or less oblong, 6 mm long, 1 mm wide, 2 mm wide above the base, the apex abruptly short-acuminate, subapiculate, with a longitudinal carina on the labellar half, produced into a thick, obtuse process above the base, with a minute process on the upper margin above the base; **lip** white, diffusely dotted with purple, oblong-subpandurate, 5.5 mm long, 2 mm wide, with marginal folds near the middle, the epichile obovate, obtuse, apiculate, channeled between calli from the folds, the hypochile oblong, subtruncate, hinged on the end; **column** greenish white, semiterete, 5 mm long, the foot 3 mm long including a short, incurved extension.

PERU: **Junín**: near Huassa-Huassi, alt. 3000 m, collected by J. Meza T., cultivated in Munich, Germany, 19 May 1980, *W. Königer s.n.* (Holotype: SEL; clonotypes: K, M, USM, W, Herb. H. Königer), C. Luer illustr. 5250.



This species is one of several apparently endemic species that occurs around 3000 meters above sea level above the ancient community of Huassa-Huassi in central Peru, where the original collection of *M. uniflora* was made by Ruiz and Pavón.

Vegetatively, *M. scitula* is small for the section. The slender peduncle is about as long as or longer than the leaves. Often a second flower opens before the previous flower fades. The sepals are connate into a short, cylindrical tube with the synsepal expanded beyond with minutely cellular-spiculate clumps on the inner surface. The callous, lower half of the petals ends in an obtuse protuberance while a small marginal lobule is present above the base on the upper margin. The epichile of the lip is apiculate.

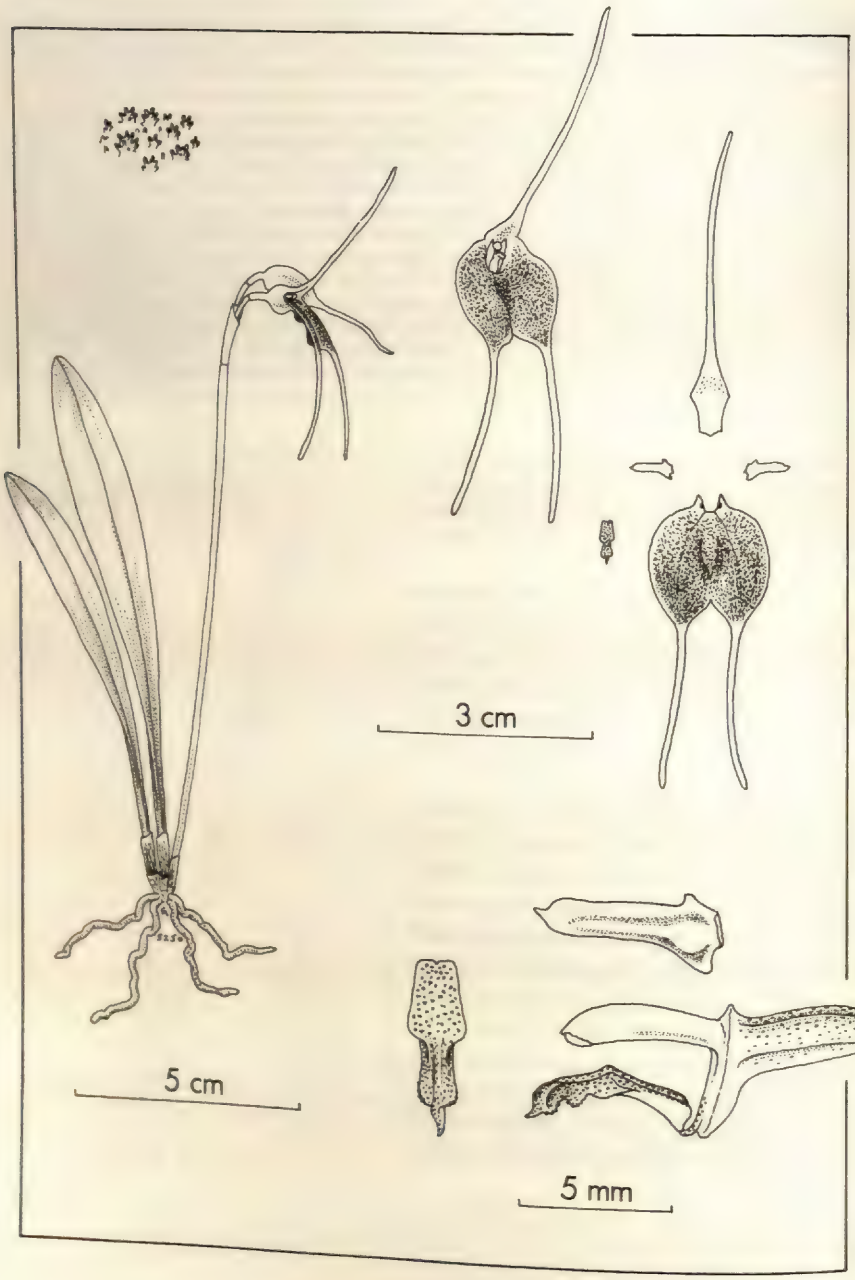


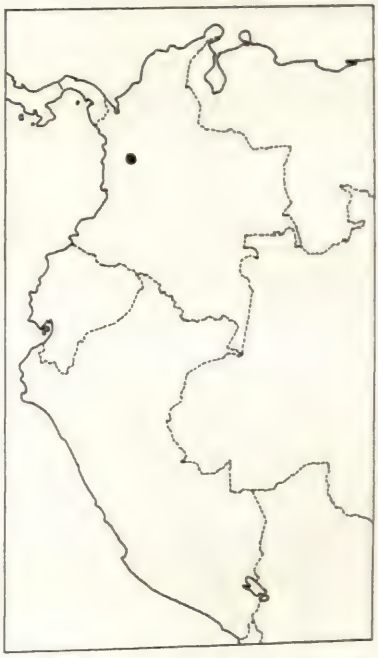

Plate 87. Masdevallia scitula

**Masdevallia scobina** Luer & Escobar, Selbyana 7: 75, 1982.

Ety.: From the Latin *scobina*, "a rasp," referring to the dorsal sepal.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-1.5 cm long, unclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-11 cm long including the ill-defined petiole ca. 2 cm long, the blade narrowly obovate, obtuse, 2-2.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a congested, successively many-flowered raceme of up to 12 long-pedicellate flowers, borne by a triquetrous peduncle 15-31 cm long, with a sheath at the base, from low on the ramicaul; floral bracts white, thin, papery, imbricating, 8-15 mm long; pedicel 15-23 mm long; ovary green, 7 mm long; dorsal sepal yellow-orange, narrowly triangular, carinate, 22-36 mm long, 7-9 mm wide, the apex produced into an erect, thick, semiterete, subverrucose tail, connate 3mm with revolute margins to the lateral sepals to form a shallow cup exposing the central apparatus; lateral sepals dark purple, verrucose, connate to near the apices into an ovate, shallowly bifid lamina 18 mm long, 14-16 mm wide, the apices green, acute, approximate; **petals** yellow, oblong, 4-5 mm long, 2.25 mm wide, both halves longitudinally callous, the lower rounded above the base, the subacute apex bilobed; **lip** white, marked with purple, more or less oblong, 5 mm long, 1.5-2.5 mm wide, with a pair of oblique, verrucose, marginal calli near the middle, the epichile markedly verrucose, convex with the apex rounded, the hypochile narrowly oblong with an erect, longitudinal callus, the base thick, subcordate, hinged on the end; **column** white with purple margins, semiterete, 5 mm long, the foot thick, 3 mm long, with a short, incurved extension.

COLOMBIA: **Antioquia**: Urrao, Río Penderisco, alt. 2100-2200 m, 15 May 1977, collected by E. Segura, cultivated by O.J. Arango at La Estrella, 5 Oct. 1977, *C. Luer 1904* (Holotype: SEL; Isotype: JAUM; clonotype: K); Urrao, Quebradona, alt. 2000 m, collected by E. Valencia, Oct. 1986, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13249* (MO).



This rare species is apparently endemic to the Western Cordillera of Colombia. It was described from a cultivated plant found by the late professional collector E. Segura.

*Masdevallia scobina* is similar to *M. melanoxantha* of the Eastern Cordillera and Venezuela, but the former is distinguished by the long pedicels that protrude far beyond the imbricating floral bracts in the congested raceme. The flowers of the two species also appear similar, but the dorsal sepal of *M. scobina* is shallowly connate to the lateral sepals to form a very short or shallow sepaline tube so that the petals, lip, and column are exposed. The erect, yellow tail is terete and rough like a rasp. The sepaline tube of *M. melanoxantha*, although short, is well developed and twice as long. The lips are also similar with a pair of erect, fin-like calli, but the hypochile of the lip of *M. scobina* is furnished with an erect, longitudinal callus.

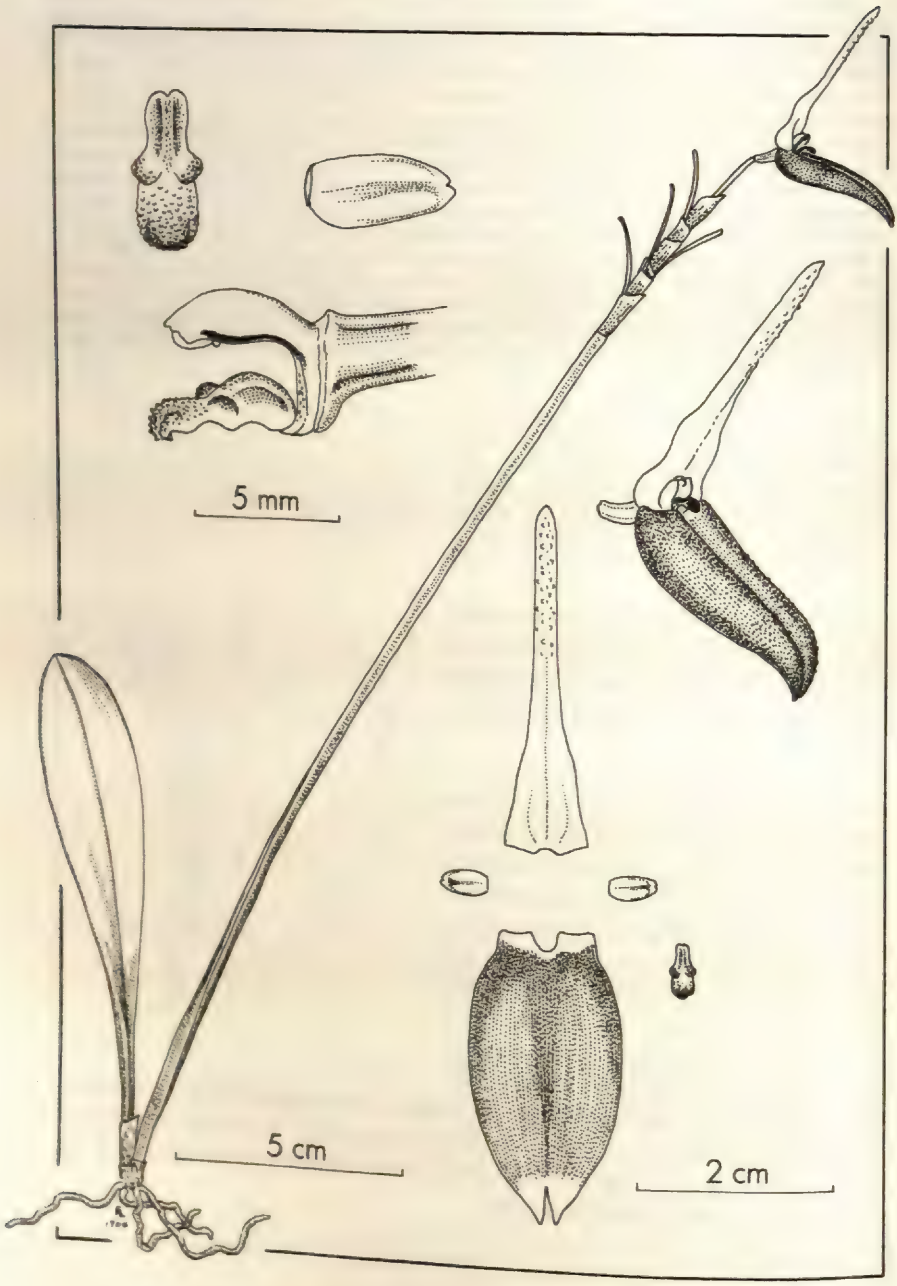



Plate 88. Masdevallia scobina

**Masdevallia serendipita** Luer & Teague, Lindleyana 8: 53, 1993.

Ety.: From serendipitous*, "the gift of finding something by chance when not sought," referring to the circumstance by which this species was discovered.

*From *Serendipity*, coined ca. 1754 by Horace Walpole in the tale *The Three Princes of Serendip*. Serendip is the old name for Ceylon, now Sri Lanka.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, subpetiolate, 5-8.5 cm long including a petiole 1.5-2 cm long, the blade elliptical, subacute, 1.3-1.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a succession of single flowers, produced in a congested raceme, borne by a slender, erect, triquetrous peduncle 17-19 cm long, with a thin bract at the base, from near the base of a ramicaul; floral bract tubular, 8 mm long; pedicel 8 mm long; ovary 4 mm long; **sepals** red-purple above the middle, orange toward the base, minutely pubescent within, the dorsal sepal obovate, 14 mm long, 9 mm wide at the junction with the lateral sepals, connate to the lateral sepals for 8 mm to form an oblique, campanulate tube, the free portion ovate, contracted into a slender, yellow tail 2.5 cm long, the lateral sepals ovate, obtuse, oblique, 20 mm long, connate 15 mm into a lamina 16 mm broad, forming a mentum with the column-foot, and with a deep, conspicuous, secondary mentum above the primary mentum; **petals** white, oblong, with the apex subtruncate or obtuse and apiculate, 7 mm long, 2 mm wide, with a low, longitudinal callus above the labellar margin ending in a low, rounded swelling above the base; **lip** red, oblong-subpandurate, 6.5 mm long, 2.8 mm wide, constricted above the middle, overlaid with wing-like marginal folds, the epichile ovate, subacute, apex acute, with a low, midline, longitudinal callus, the hypochile ovate, disc essentially featureless, the base rounded, hinged beneath; **column** white, semiterete, 6 mm long, the foot 3 mm long with a short, free extension.

BOLIVIA: **La Paz**: Prov. of Nor Yungas, epiphytic in trees along a quebrada between Coroico and Caranavi, alt. 1000 m, collected 28 Aug. 1991, cultivated by W. Teague in San Francisco, *C. Luer 16324* (Holotype: MO).

This uncommon species is apparently endemic in central Bolivia. The only plant known was discovered by Walter Teague during a delay caused by road repairs.

*Masdevallia serendipita* is characterized by the smaller than average habit for the section with a long, slender peduncle much longer than the leaves. The flower is of average size with the sepals deeply connate into a bell-shaped tube with a prominent, conical mentum. The tails of the lateral sepals recurve. The petals are oblong with the longitudinal callus swollen above the base. The lip is pandurate with wing-like folds that overlie the central constriction, and the epichile is acute without verrucosities.

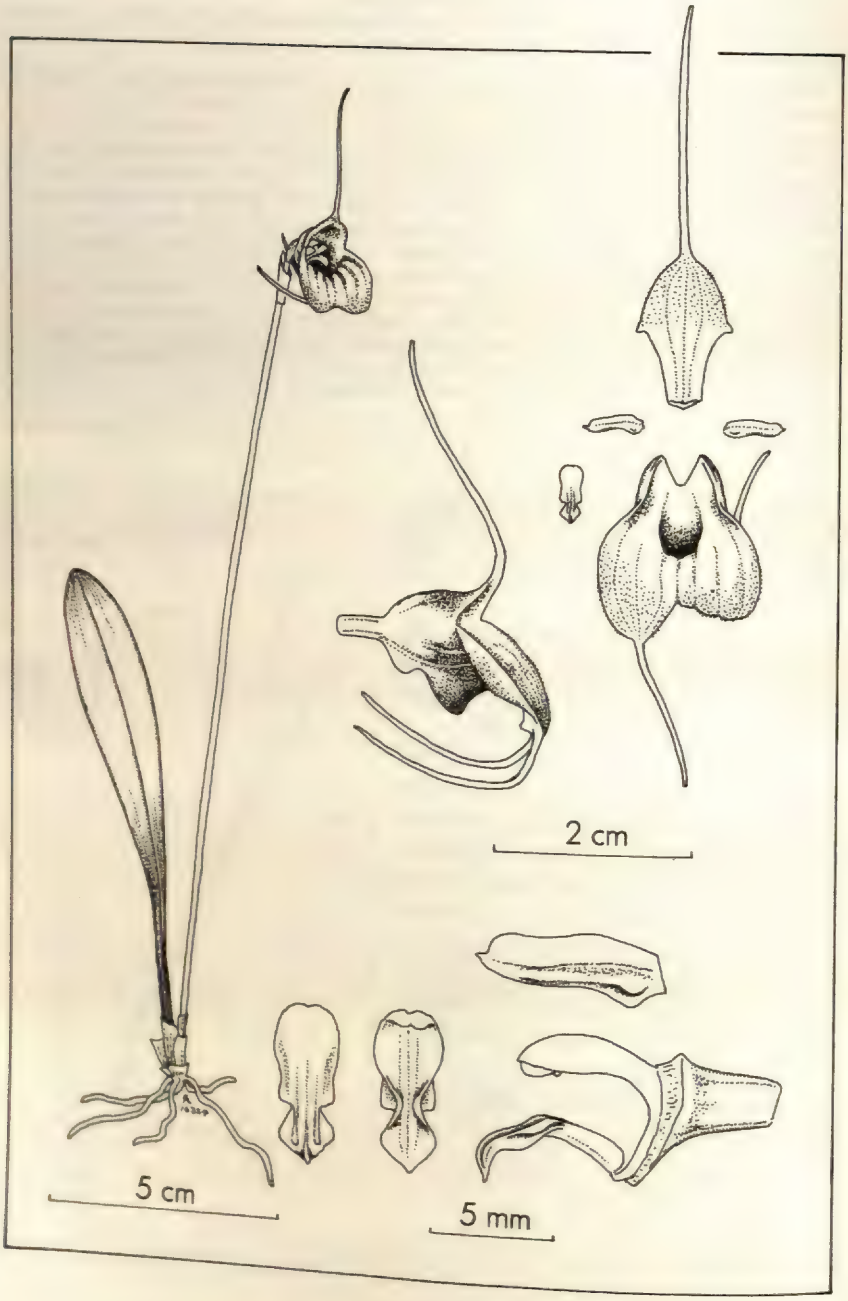


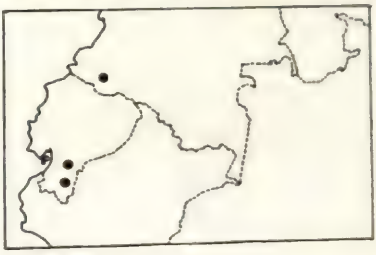

Plate 89. Masdevallia serendipita

**Masdevallia sernae** Luer & Escobar, Orquideología 13: 183, 1979.

Ety.: Named in honor of J.M. Serna who first discovered this species.

Syn.: *Masdevallia carolloi* Luer & Andreetta, Phytologia 46: 348, 1980.
Ety.: Named in honor of Padre Luis Carollo, co-discoverer of this species.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 6-12 cm long including an indistinct petiole 1.5-3 cm long, the blade elliptical-obovate, subacute to obtuse, 1.5-2.1 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a successively several-flowered, congested raceme up to 3 cm long, occasionally 2 flowers produced simultaneously, borne by a stout, erect, triquetrous peduncle 8-12.5 cm long, with a basal bract, from the base of a ramicaul; floral bracts broadly conduplicate, imbricating, acute, 8-10 mm long; pedicel 4-6 mm long; ovary 5 mm long; **sepals** yellow-green, more or less lightly veined or suffused with purple, glabrous externally with the midveins prominent, cellular-glandular within, the dorsal sepal 12-15 mm long, 9-10 mm wide, connate to the lateral sepals for 8-10 mm to form a cylindrical tube, the free portion transversely triangular, the obtuse apex contracted into a slender tail 13-15 mm long, the lateral sepals ovate, oblique, connate 10-12 mm into an ovate, bifid lamina 25 mm long including the tails, 22 mm wide, with a broad, shallow mentum, the acute apices acuminate into tails ca. 6 mm long; **petals** yellow, oblong, 8-9 mm long, 3 mm wide, the obtuse apex minutely apiculate, the lower half with a low, longitudinal callus, slightly dilated at the base; **lip** red-purple, oblong, 10-11 mm long, 4.5 mm wide, the margins with shallow folds near the middle, extending to the rounded, minutely verrucose apex with a low, midline callus, the base subcordate, hinged beneath; **column** white with purple margins, semiterete, 8 mm long, the foot 4 mm long with an incurved extension.



COLOMBIA: **Putumayo**: Munic. of Mocoa, Río Mocoa, alt. 700-900 m, 26 Aug. 1977, collected by J.M. Serna, cultivated by O.J. Arango, *R. Escobar 1820* (Holotype: JAUM); same collection, cultivated 7 Oct. 1977, *C. Luer 1884* (SEL); probably same collection, cultivated at Colomborquídeas, 18 Mar. 1989, *C. Luer 14255* (MO).
ECUADOR: **Morona-Santiago**: epiphytic in forest near Río San Juan Bosco, alt. 1000 m, Oct. 1977, collected by A. Andreetta, L. Carollo & M. Portilla, cultivated by A. Andreetta in Cuenca, 6 Nov. 1979, *C. Luer 4693* (holotype of *M. carolloi*: SEL); same collection, cultivated at Paute, 24 May 1988, *C. Luer 13666* (MO); between Limón and San Juan Bosco, alt. 1500 m, collected by E. Sanchez, cultivated by A. Hirtz in Quito, Feb. 1995, *A. Hirtz 6193* (MO). **Zamora-Chinchipe**: Zamora, collected by A. Andreetta, cultivated at Paute, Aug. 1990, *A. Hirtz 5033* (MO).

First collected southeastern Colombia by a professional collector, this species is apparently infrequent in forests of Colombia and eastern Ecuador at relatively low altitudes. The plants from Ecuador described as *M. carolloi* do not differ significantly from those from Colombia.

*Masdevallia sernae* is most similar to the variable *M. bicolor* complex, but *M. sernae* is distinguished by the yellow-green flowers with expanded synsepal that are borne successively in a congested raceme. Occasionally two flowers are open simultaneously.

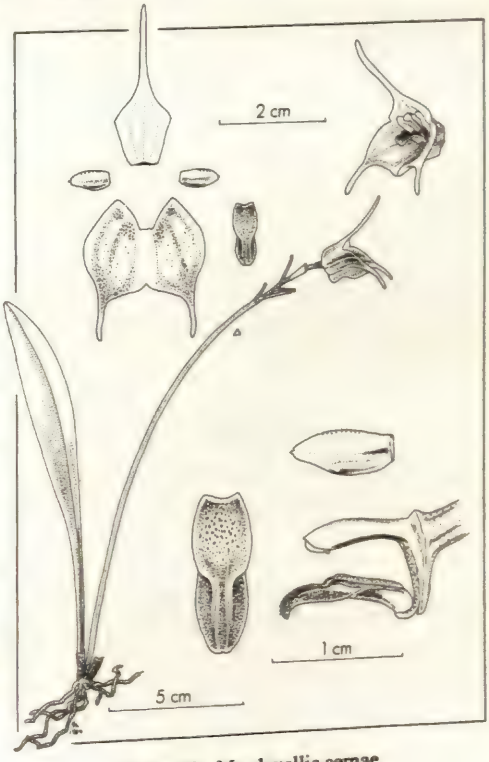



Plate 90. Masdevallia sernae

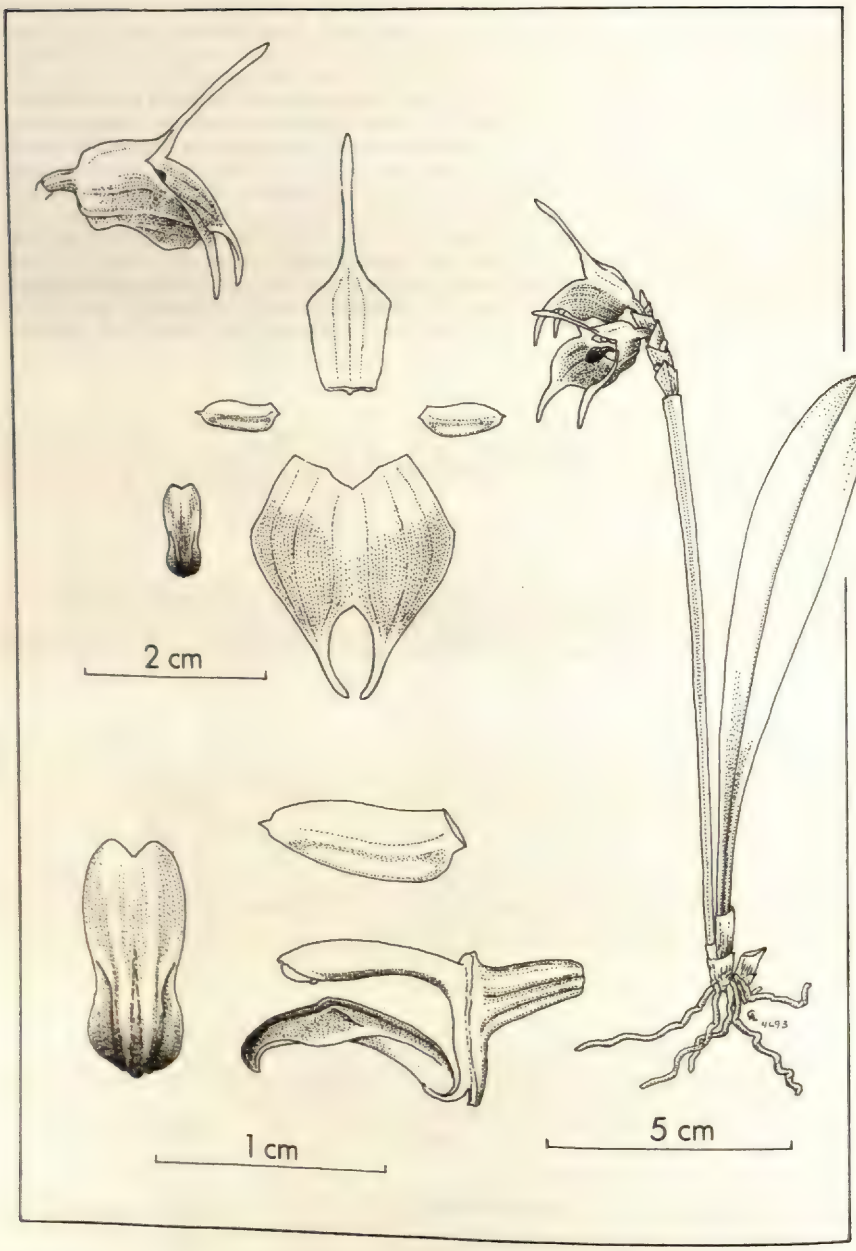



Plate 91. Masdevallia sernae
(M. carolloi)

**Masdevallia sprucei** Rchb.f., Otia Bot. Hamburgensia 1: 17, 1878.

Ety.: Named in honor of its English collector, bryologist R. Spruce.

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.5-0.7 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 3-6.5 cm long including the petiole 0.5-1.5 cm long, the blade elliptical, obtuse, 0.9-1.2 cm wide, the base cuneate into the petiole. **Inflorescence** a succession of solitary flowers produced in a congested, few-flowered raceme, borne by a slender peduncle 5-6 cm long, the peduncle triquetrous, but often becoming terete toward the apex, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 5 mm long; pedicel 6-7 mm long; ovary 3 mm long; **sepals** pale yellow, microscopically pubescent within, the dorsal sepal obovate, shallowly concave, 9 mm long, 6 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical, sepaline tube, the apex subacute, contracted into a thick, yellow tail 10-11 mm long, the lateral sepals with an area of rosy or purple suffusion near the center, oblong, oblique, 12 mm long, 5 mm wide, connate for 5 mm to form a shallow mentum, the apices subacute, contracted into thick, yellow tails 6 mm long; **petals** white, oblong, 4.5 mm long, 1.5 mm wide, the apex truncate or obscurely bilobed, with or without a blunt apiculum, the labellar margin with a longitudinal carina ending in a low, rounded process at the base; **lip** yellow, oblong-subpandurate, 4.5 mm long, 1.25-1.5 mm wide, with obtuse to acutely angled marginal folds near the middle and continuing onto the apical portion as a pair of low calli, the apical portion ovate, obtuse, apiculate or triapiculate, oblong below the middle, the base truncate, hinged beneath; **column** white, semiterete, 3.5 mm long, the foot 2.5 mm long with a short, incurved extension.

VENEZUELA: **Amazonas**: epiphytic along the rivulet Uaiauaka, a tributary of Río Pasimoni, Feb. 1854, *R. Spruce 3369* (Holotype: K; Isotypes: BR, P, W); Río Extremo Sur near junction with the Upper Siapa river, alt. 520 m, June 1974, *G.C.K. Dunsterville 1151*; Río Pasimoni, epiphytic along the river bank, alt. 250 m, July 1966, *G.C.K. Dunsterville 2*; Río Negro, alt. 550 m, 14 Nov. 1982, *F. Guanchez s.n.* (VEN); same area, alt. 130 m, 1 Apr. 1984, *R. Liesner 17068* (MO); same area, alt. 100 m, 20 July 1984, *G. Davidse 27539* (MO, VEN); same area, *R. Liesner & G. Carnevali 22742* (MO, VEN). **Bolívar**: Río Paragua, near Uaiquinima rapids, alt. 300 m, *G.C.K. Dunsterville s.n.*; between Sta. Elena and Peraitepui, alt. 800 m, *G.C.K. Dunsterville s.n.*
BRAZIL: **Amazonas**, Alto Rio Negro, 15 Km north of Sâo Gabriel de Cachoeira, alt. ca. 100 m, epiphytic in tall forest, 24 Oct. 1978, *M. Madison et al. 6552* (AMES, SEL), C. Luer illustr 3468; Amazonas, cultivated at Orquidário Binot, Petrópolis, 27 Jan. 1997, *C. Luer 18273* (MO).

This species occurs in wet forests at low altitudes in Amazonian Venezuela and Brazil, where very few other species of pleurothallids are known. It was first collected by Spruce on his noted travels across South America.

Vegetatively, *M. sprucei* is indistinguishable from most other small species of the genus, but it is distinguished by the successively few-flowered raceme borne by a slender peduncle, considerably more slender than that of the similar *M. bicolor*. The peduncle in the lower portions is triquetrous, but toward the apex it becomes terete. Sometimes the peduncle is either totally triquetrous or totally terete, as seen in *M. infracta*.

An illustration by Dunsterville of *M. sprucei* is misidentified in *Venezuelan Orchids Illustrated* as *M. peruviana*, in addition to another illustration of the same species correctly identified. Typically, a large area of purplish suffusion is present near the center of the lateral sepals.

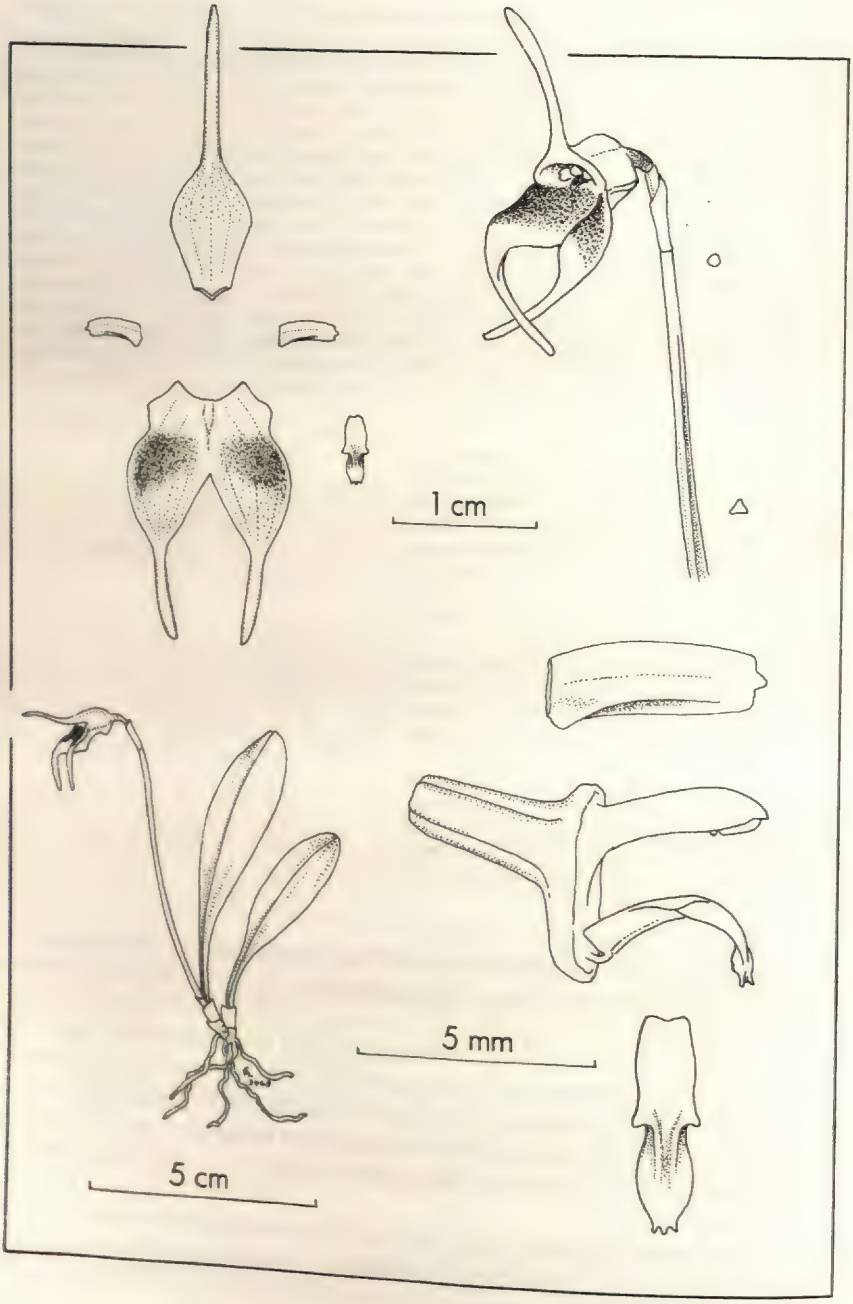



Plate 92. Masdevallia sprucei

**Masdevallia stenorhynchos** Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 130, 1922.

Ety.: From the Greek *stenorhynchos*, "a narrow snout," referring to the narrower tail of the dorsal sepal as compared to that of *M. elephanticeps*.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-14 cm long including an indistinct petiole 2-4 cm long, the blade elliptical-obovate, 1.5-2.3 cm wide, obtuse to rounded at the apex, gradually narrowed below to the subpetiolate base. **Inflorescence** a congested, successively few-flowered raceme, borne by a stout, erect, triquetrous peduncle 7-8.5 cm long, with a bract at the base, from the base of the ramicaul; floral bracts tubular, imbricating, 9-12 mm long; pedicel 10-12 mm long; ovary 5-7 mm long; **sepals** yellow-green, subcarinate, glabrous externally, the dorsal sepal verrucose within, ovate, 14 mm long, 9 mm wide, connate to the lateral sepals for 1.5 mm to form a gaping, sepaline cup, the apex acute, acuminate into a slender, ascending, yellow tail ca. 3.5 cm long, the lateral sepals heavily spotted and suffused with purple-brown, connate 20 mm into an ovate, bifid lamina, 30 mm long, 19 mm wide expanded, verrucose with tufts of short hairs, the apices acute, acuminate into slender, yellow-orange tails 2-2.5 cm long; **petals** white, oblong, 8 mm long, 2 mm wide, the apex bilobed, the labellar half with a low, longitudinal callus slightly swollen at the base; **lip** white, spotted with red-purple, oblong-pandurate, 7 mm long, 2.75 mm wide, with acute, oblique, marginal folds above the middle, with the disc shallowly sulcate, the epichile ovate, obtuse, spiculate-crested, with the tip deflexed and apiculate with deeply lacerate margins, the hypochile oblong, truncate, hinged on the end; **column** green with purple margins, semiterete, 6 mm long, the foot 3 mm long, speckled with purple, with a short, incurved extension.

COLOMBIA: **Antioquia**: Frontino, El Plateado, *Kalbreyer 1528* (Holotype destroyed at B); Urrao, Río Penderisco, alt. 2000-2000 m, 15 May 1977, collected by E. Segura, cultivated by M. & O. Robledo at La Ceja, 28 Sept. 1977, *C. Luer 1862* (Neotype: SEL); Urrao, Quebradona. alt. 2000 m, collected by E. Valencia, Oct. 1986, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13212* (MO).

This species is infrequent and apparently endemic in the northern part of the Western Cordillera of Colombia. It was first collected near Frontino by Kalbreyer in the last century.

Although vegetatively similar to numerous other species of the section, this species is easily identified by the distinctive flowers. The flowers are large with a yellow-green dorsal sepal and brown-spotted, expanded lateral sepals with recurving margins. The lateral sepals are deeply connate, but they are connate to the dorsal sepal only at the base, forming a negligible sepaline cup. The tail of the dorsal sepal curves upward beyond the horizontal blade, while the acuminate tails of the lateral sepals bend downward only slightly. The epichile of the lip is remarkably crested and fringed.

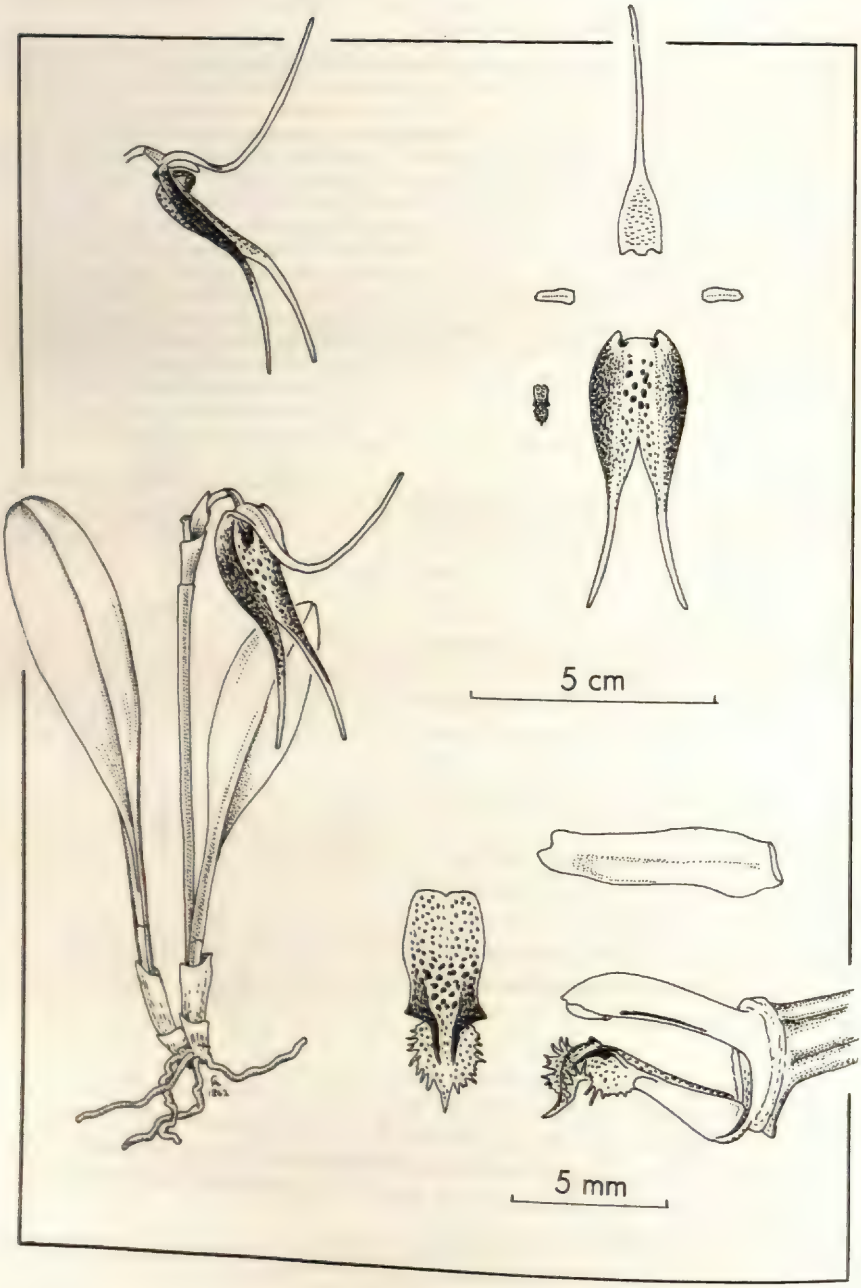


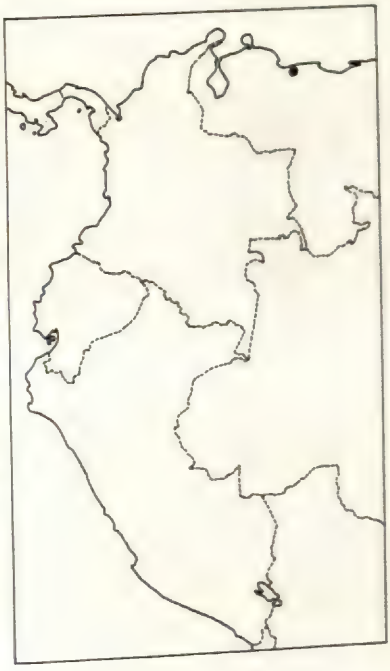

Plate 93. Masdevallia stenorhynchos

**Masdevallia stirpis** Luer, Lindleyana 4: 122, 1989.

Ety.: From the Latin *stirpis*, "of the same stock," referring to the apparently common origin of this taxon with others.

**Plant** large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 9-13 cm long including the petiole 1-1.5 cm long, the blade elliptical-obovate, obtuse, 2.2-2.6 cm wide, cuneate below into the petiole. **Inflorescence** a succession of solitary flowers borne in a congested raceme by a stout, erect, triquetrous peduncle 13-17 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 2 cm long; pedicel 2 cm long; ovary 5-7 mm long; **sepals** fleshy-rigid, the dorsal sepal orange, lightly suffused with dull purple externally, red-brown within above the middle, subobovate, 25 mm long, 12 mm wide, connate to the lateral sepals for 15 mm to form a broad, cylindrical, sepaline tube, the apex acute, contracted into a forwardly directed, orange tail 7 cm long, the lateral sepals dark red-purple, orange at the base, ovate, oblique, more or less flat, 40 mm long, connate 35 mm, 21 mm wide together, the apices acute, oblique, in apposition, decussate, contracted into slender, straight, yellow tails 5 cm long; **petals** white, cartilaginous, oblong, 8.5 mm long, 3.5 mm wide, the apex obtuse, irregularly minutely notched and apiculate; **lip** purple, heavily dotted with dark purple, oblong-subpandurate, 8 mm long, 3 mm wide, the apex rounded, spiculate-verrucose, the disc with a low, obtuse pair of thick, marginal folds, the base rounded, hinged beneath; **column** white, semiterete, 5 mm long, the foot equally long including an incurved extension.

VENEZUELA: **Aragua**: near Colonia Tovar, alt. ca. 1500 m, collected by Eneas Torres 15 May 1985, cultivated by Colomborquídeas, Colombia, 11 Apr. 1988, *C. Luer 13131* (Holotype: MO); same area, collected by Eneas Torres, also flowered at Colomborquídeas, 11 Apr. 1988, *C. Luer 13149* (MO).



This species is related to *M. deceptrix*, *M. impostor*, and *M. maculata*, all four of which occur in the coastal mountains of Venezuela.

Vegetatively similar to these species, *M. stirpis* is distinguished by a larger flower borne by a stout, proportionately shorter peduncle; a longer, orange sepaline tube; and expanded, dark red-purple lateral sepals with long, crossed, acuminate tails. The entire length of the dorsal sepal with tail reaches 10 centimeters.

The petals are oblong and cartilaginous without an obvious callus. The lip is subpandurate with thick, obtuse, marginal folds. The epichile is minutely spiculate.

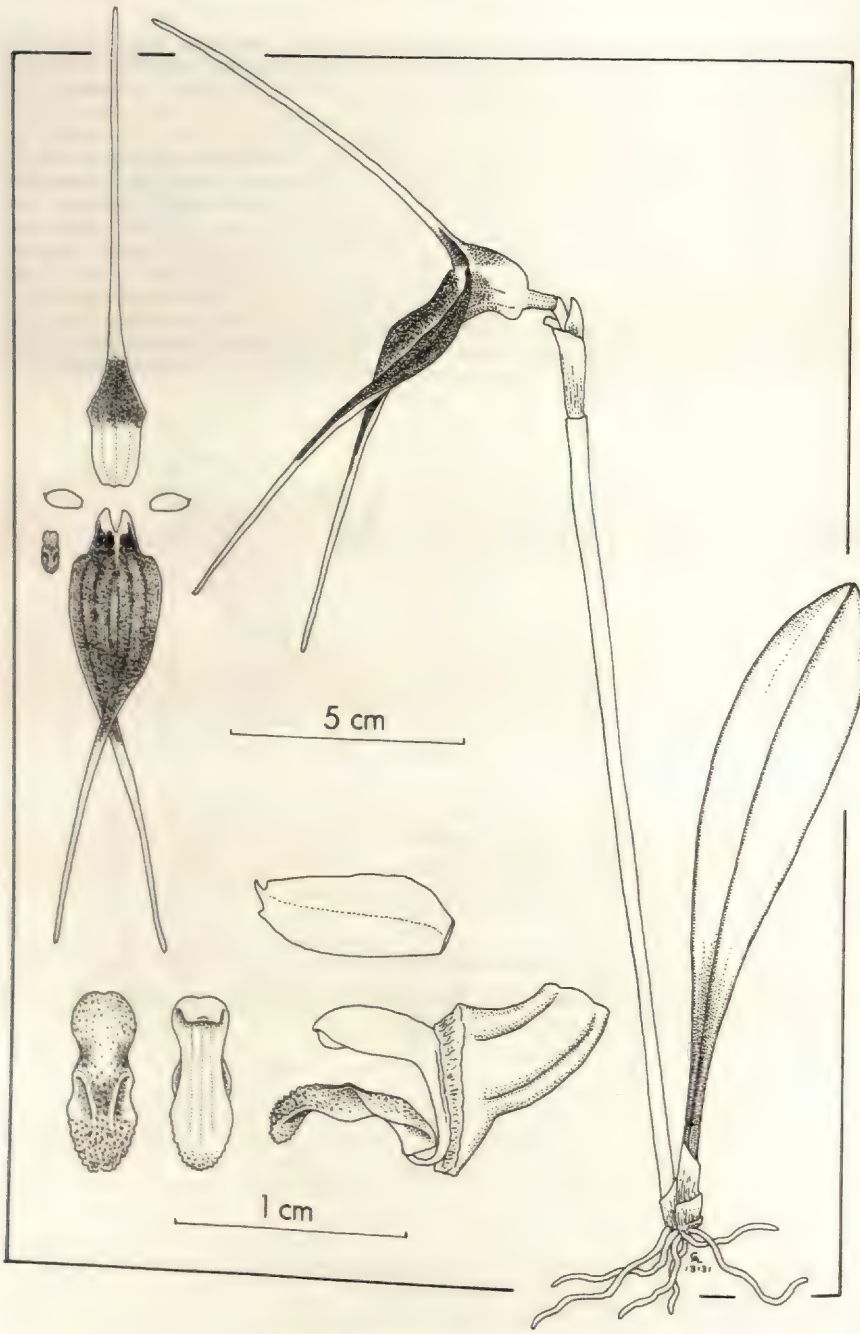


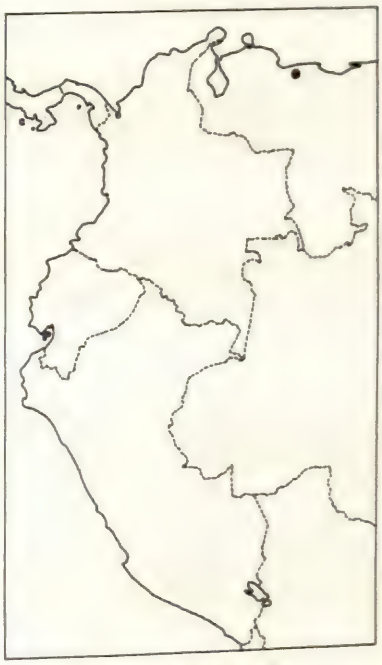

Plate 94. Masdevallia stirpis

**Masdevallia synthesis** Luer, Lindleyana 8: 55, 1993.

Ety.: From the Greek *synthesis*, "compounding," alluding to the probable hybrid origin.

**Plant** large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 2-8 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 10-15 cm long including the petiole 1.5-3.5 cm long, the blade elliptical-obovate, subacute to obtuse, 1.5-2.5 cm wide, gradually narrowed below into the channeled petiole. **Inflorescence** a single flower, produced successively in a congested raceme 2-4 cm long, borne by a slender, erect, triquetrous peduncle 16-19 cm long, with a bract at the base, from the base of a ramicaul; floral bracts whitish, tubular, imbricating, 12-17 mm long; pedicels 25 mm long; ovary 5 mm long; **sepals** pale yellow-green, glabrous externally, sparsely cellular-glandular within, the dorsal sepal obovate, the blade ca. 17 mm long, 9 mm wide, connate to the lateral sepals for 11 mm to form a gaping sepaline tube, the triangular apex gradually narrowed into the tail ca. 25 mm long, the total length 45 mm, the lateral sepals connate 14 mm into an ovate, bifid lamina, ca. 17 mm long, 19 mm wide, shallowly concave into a broad mentum, the obtuse apices contracted into slender tails ca. 17 mm long; **petals** yellowish white, oblong, 6 mm long, 2 mm wide, the apex oblique, obscurely lobed with lower lobe acute, the labellar half with a low, longitudinal callus; **lip** yellow-green, lightly dotted with purple, oblong-subpandurate, 7 mm long, 2 mm wide, with marginal folds near the middle, the epichile ovate, obtuse, minutely apiculate, verrucose, the hypochile oblong, slightly channeled, the base subtruncate, hinged beneath; **column** white, semiterete, 6 mm long, the foot 4 mm long with a short, incurved extension.

VENEZUELA: **Aragua**: epiphytic near Colonia Tovar, discovered by Tineke Mulder, alt. ca. 1500 m, 5 Mar. 1979, cultivated at Wageningen, Holland, Oct. 1988, *C. Luer 13771* (Holotype: MO).



A large clump of plants was discovered on a fallen limb of a tree near Colonia Tovar by Tineke Mulder in 1979. In cultivation in the Netherlands, this huge cluster of leaves eventually proved to be composed of a pale-colored form of *M. maculata* and another taxon that resembled *M. infracta*. The latter was described as *M. synthesis*, suggesting a possible hybrid origin.

*Masdevallia maculata* and *M. tovarensis* are relatively common in the coastal range of Venezuela, and it should be no surprise if a hybrid between the two should occasionally appear. The floral parts of *M. synthesis* seem intermediate between *M. maculata* and *M. tovarensis*. The Venezuelan "M. infracta" could be a natural hybrid that only resembles *M. infracta*, without being related at all.

Perhaps the occasional occurrence of this supposed hybrid is the source of unconfirmed reports of *M. infracta* occurring in Venezuela. Experimental hybridization between the purported parents should be carried out.

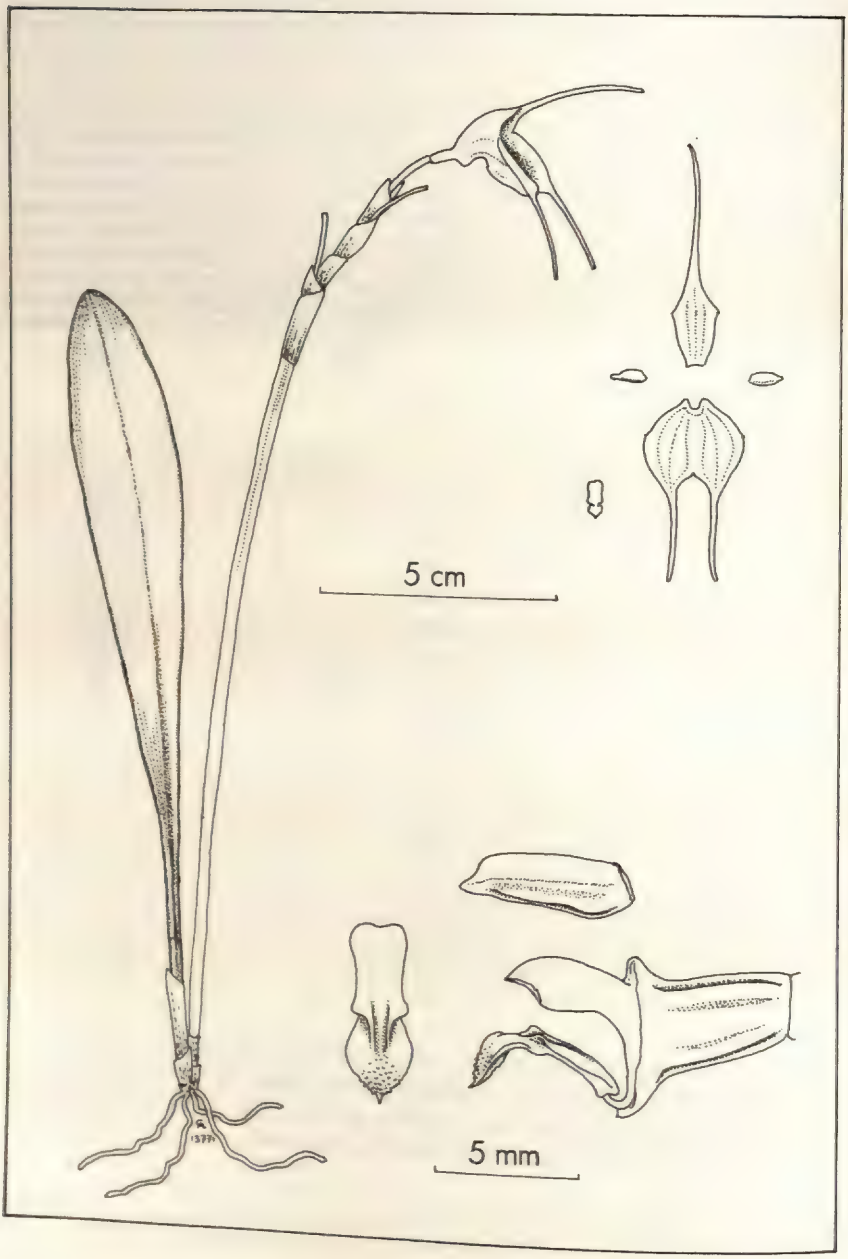



Plate 95. Masdevallia synthesis

**Masdevallia theleüra** Luer, Phytologia 47: 70, 1980.

Ety.: From the Greek *thele*, "a nipple," and *oura*, "a tail," in allusion to the nipple-like tails of the lateral sepals.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, 1.5-2.5 cm long, enclosed by 2-3 close, imbricating sheaths. **Leaf** erect, thickly coriaceous, glossy dark green, 8-14 cm long, 1.6-2.1 cm wide, the blade narrowly obovate to elliptical, subacute, the base gradually narrowed to the channeled, subpetiolate base. **Inflorescence** a congested, successively several-flowered raceme 2-4 cm long, borne by a slender, triquetrous peduncle 13-23 cm long, with a basal bract from near the base of the ramicaul; floral bracts conduplicate, obtuse, imbricating, 7-10 mm long; pedicel 5 mm long; ovary 4 mm long; **dorsal sepal** yellow-green, obovate, 7-8 mm long, 6 mm wide, connate to the lateral sepals for 6 mm to form a short, cylindrical tube, the free portion broadly triangular, the obtuse apex contracted into a slender, green, erect tail 15-18 mm long; **lateral sepals** glabrous externally, red-purple and shortly pubescent within, connate 15 mm into an ovate, broadly expanded lamina 17-19 mm long, 16 mm wide, the apices close, obtuse, each contracted into a green tail 2 mm long; **petals** ivory, marked with red-purple, oblong, 6 mm long, 2 mm wide, the subtruncate apex apiculate, with a low, longitudinal callus on the labellar half ending in a low, rounded callus near the base; **lip** yellow, flecked with red-brown, oblong, 7 mm long, 2.5 mm wide, with obtuse marginal folds near the middle, the apex obtuse, shortly acuminate, apiculate, the base subcordate, hinged below to the column-foot; **column** red, semiterete, 4 mm long, the foot 2 mm long with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. ca. 1500 m, obtained by Janet Kuhn, cultivated at J & L Orchids, Easton, CT., 8 Nov. 1977, *C. Luer 2129* (Holotype: SEL); same collection, cultivated at Colomborquídeas, 8 May 1985, *C. Luer 2129* (MO); collected by D. D'Alessandro, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13286* (MO).

This species is apparently uncommon in the forests of southeastern Ecuador. A collection from Peru has been reported. It is related to the variable complexes known as *M. cuprea* and *M. weberbaueri*.

*Masdevallia theleüra* is distinguished by the long, triquetrous peduncle that far exceeds the leaf, and congested a congested raceme of imbricating floral bracts and short pedicels. From the short sepaline tube, the lateral sepals are broadly expanded into a synsepal with a pair of two-millimeter-long, nipple-like tails. The slender tail of the dorsal sepal is erect and more or less reflexed. The petals and lip are not unlike those of the above two related species

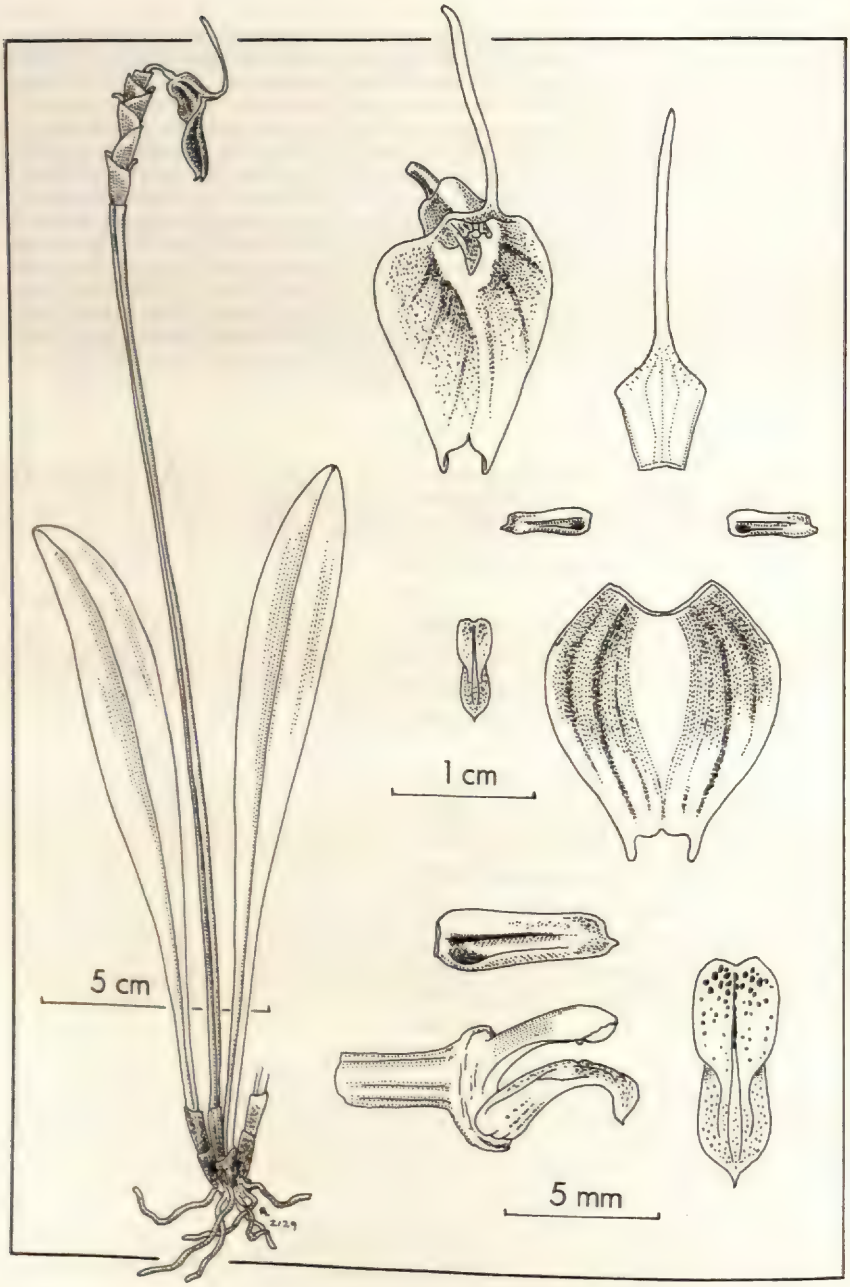



Plate 96. Masdevallia theleüra

**Masdevallia tovarensis** Rchb.f., Linnaea 22: 818, 1849.

Ety.: Named for the German colony of Tovar in northern Venezuela where the species was discovered.

Syn.: *Masdevallia candida* Klotzsch & H.Karst. ex Rchb.f., Bonplandia 2: 23, 1854, *nomen nudum*.
Ety.: From the Latin *candidus*, "pure white," referring to the flowers.

**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, glossy green, 9-14 cm long including the petiole 2-5 cm long, the blade elliptical, subacute to obtuse, 2-3 cm wide, narrowly cuneate below into the stout petiole. **Inflorescence** a congested raceme, ca. 2 cm long with up to 8 flowers, 2-4 produced simultaneously, borne by a stout, erect, triquetrous peduncle, 8-16 cm long, with a bract at the base, from low on the ramicaul; floral bracts white, tubular, imbricating, 10-15 mm long; pedicel 20-30 mm long; ovary 5 mm long; **sepals** white, glabrous, the dorsal sepal ovate, 16 mm long, 9 mm wide, connate to the lateral sepals for 8 mm to form a cylindrical, sepaline tube, the free portion ovate, subacute, contracted into a slender, erect tail 2.5-3 cm long, the lateral sepals connate 20 mm into a broadly ovate lamina, concave centrally, 25 mm long, 24 mm wide expanded, the apices obtuse, contracted into tails 9-10 mm long; **petals** white, oblong, 6 mm long, 2 mm wide, with the apex subtruncate-bilobed, the labellar half with a longitudinal callus terminating above the base; **lip** white, oblong-subpandurate, lightly arcuate, 6 mm long, 2.25 mm wide, with obtuse, marginal folds near the middle, shallowly sulcate between, the epichile ovate, acute, the hypochile truncate, hinged beneath; **column** white, more or less suffused with red-purple, semiterete, 4.5 mm long, the foot stout, 2 mm long with a short, incurved extension.

VENEZUELA: **Aragua**: near Colonia Tovar, alt. 2000 m, 1846, *Moritz 605* (Holotype: W, Isotypes: HBG, K); same area, alt. 2000 m, 1842, collected by *J. Linden s.n.* (nomen nudum for *M. candida*); without locality, 21 Dec. 1852, *J. Linden s.n.* (K); Colonia Tovar, 1854-56, *Fendler 1361* (AMES, K, W); alt. 2100-2200 m, 26 Dec. 1921, *H. Pittier 9992* (AMES). **Dist. Fed.**: "Caracas," alt. 6,000 ft., *H. Wagener 83* (W); between Tovar and El Limón, alt. 1600 m, 25 Apr. 1959, *J. Renz 9659* (BAS); around Colonia Tovar, alt. 2000 m, 6 Dec. 1956, *J. Renz 8845* (BAS); Pico Codazzi, northeast of Colonia Tovar, alt. 2000-2150 m, 5 Dec. 1977, *J.A. Steyermark, O. Huber & V. Carreño 115462* (MO, VEN); Junquito, collected by C. García, cultivated by M. & O. Robledo at La Ceja, Colombia, 30 Sept. 1977, *C. Luer 1872* (SEL); near Colonia Tovar, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13237* (MO).

This species is endemic and still locally abundant in the coastal range of Venezuela where it was first collected in 1842 by Jean Linden who referred to it as *M. candida*. Reichenbach described it a few years later as *M. tovarensis* from a collection by Moritz. It grows well in cultivation and is familiar to hobbyists.

Dunsterville remarked that stems of the snow white flowers are sold on the street-corners in Caracas before Christmas at the height of its flowering season. Several of the relatively large, snow white flowers are produced simultaneously in a crowded raceme. If not disturbed, the peduncle will produce another flowering the following year.

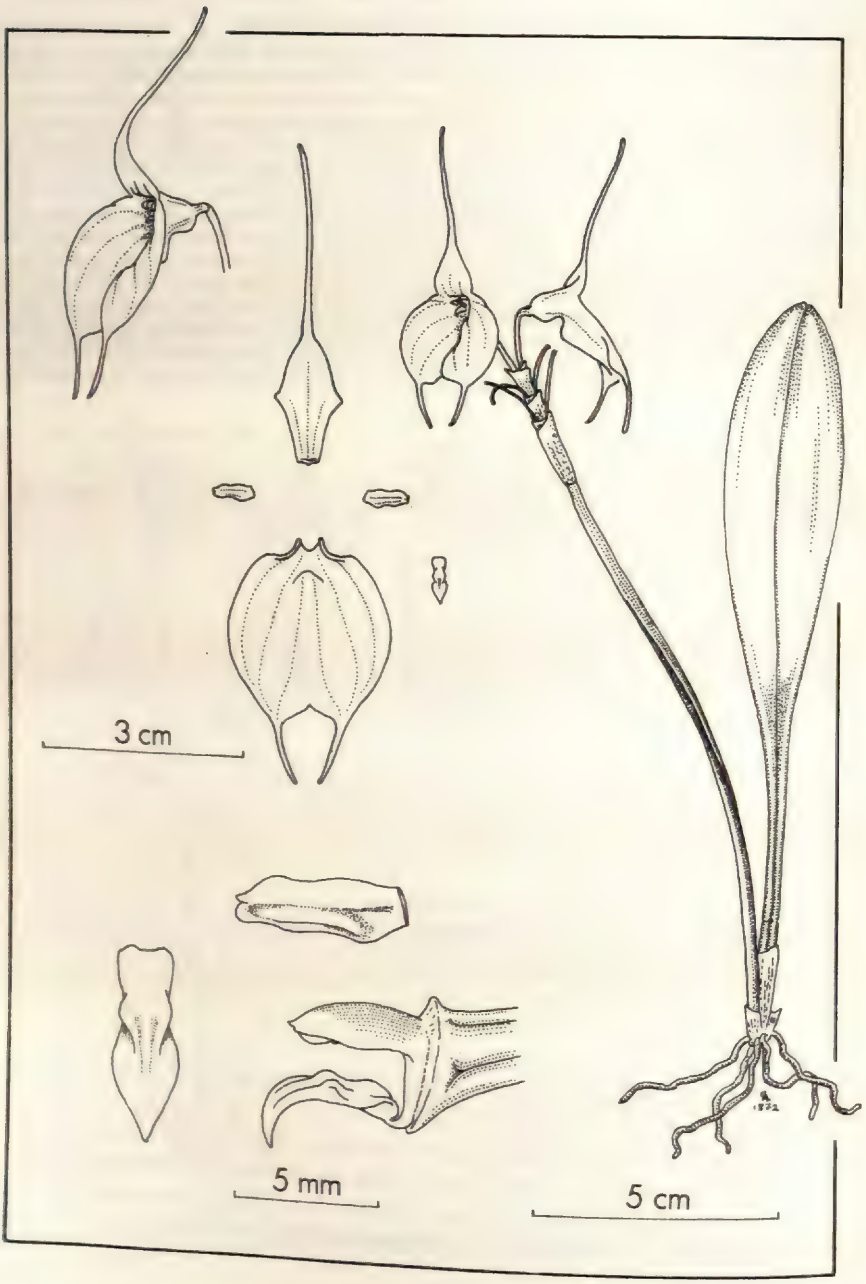



Plate 97. Masdevallia tovarensis

**Masdevallia trochilus** Linden & André, in Lind. Catalogue 1873; et Gard. Chron. 33: 711, 24 May 1873.

Ety.: From the Latin *trochilus*, "a little bird," applied to the hummingbird of the New World (Family Trochilidae), as a translation of the colloquial Indian name for the plant.

Syn.: *Masdevallia ephippium* Rchb.f., Bot. Zeitung (Berlin) 390, 20 June 1873.
Ety.: From the Latin *ephippium*, "a saddle," referring to the shape of the lateral sepals.

Syn.: *Masdevallia colibri* Burbidge, Florist & Pomol. 3, 1873, nomen nudum.
Ety.: From *Colibri*, "a hummingbird," the Indian name for the plant.

Syn.: *Masdevallia acrochordonia* Rchb.f., Xenia Orchidaceae 2: 213, 1874.
Ety.: From the Greek *akrochordon*, "a wart," referring to the warty interior of the sepals.

Syn.: *Masdevallia ephippium* var. *acrochordonia* (Rchb.f.) Woolw., Genus Masdevallia sub t. 43, 1892.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 3-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 10-22 cm long including the petiole 2-6 cm long, the blade elliptical, obtuse, 2.2-4 cm wide, narrowly cuneate below into the stout, channeled petiole. **Inflorescence** a subcongested, successively flowered raceme up to 10 cm long, borne by a suberect, stout peduncle 20-35 cm long, up to 0.5 cm broad, with a bract at the base, from low on the ramicaul; floral bracts foliaceous, imbricating, 1.5-4 cm long; pedicel 2-4.5 cm long; ovary 5-9 mm long; **dorsal sepal** yellow, sometimes suffused with purple, obovate, 18-23 mm long, 8-10 mm wide, connate to the lateral sepals for 5-9 mm to form a cylindrical sepaline tube, the acute, free portion triangular to ovate, contracted into a slender, erect tail 6-9 cm long; **lateral sepals** red-brown to purple-brown, connate 20-25 mm to form a deeply ventricose, ovoid synsepal 25-33 mm long, 20-25 mm wide unexpanded, 15-20 mm deep, with the sides variably incurved, the veins prominent within and verrucose toward the apices, the apices acute, approximate, contracted into slender tails 3-6.5 cm long; **petals** white, oblong, 6-9 mm long, 2 mm wide, the apex acute to tridentate, the labellar half longitudinally callous-thickened; **lip** white, diffusely dotted with purple, oblong-pandurate, 7-8.5 mm long, 2-2.5 mm wide, with prominent, narrowly obtuse, lobe-like, marginal folds near the middle, the epichile ovate with the apex minutely verrucose, obtusely apiculate, the hypochile narrowly oblong, the base subcordate, hinged on the end; **column** white with purple margins, semiterete, 5-7 mm long, the foot stout, 3 mm long, with a short, incurved extension.

COLOMBIA: **Antioquia**: Sonsón, above Sonsón, 1872, *G. Wallis s.n.* (Holotype: W); same area, alt. 2000 m, 18 Oct. 1884, t. 1472, *F.C. Lehmann 3889* (BM, G, W); "Medellín," *B. Roezl s.n.* (W); "Medellín," alt. 10,000 ft., *Patin s.n.* (K, W); El Retiro, Hda. Normandía, alt. 2500 m, 2 Dec. 1956, *M. Ospina-Hernández 77* (AMES, COL); Abriaquí, Río Herradura, alt. 2200 m, 13 May 1983, *R. Escobar & E. Valencia 2581* (SEL); Urrao, Río Pabón, alt. 2100 m, 28 Apr. 1977, collected by E. Segura, cultivated at La Estrella by O. Arango, 6 Oct. 1977, *C. Luer 1938* (SEL); Urrao, Quebradona, collected by E. Valencia, Oct. 1986, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13227* (MO). **Cauca**: Buenaventura, 1877, *Klaboch s.n.* (W); forests above Popayán, alt. 1750-2000 m, 23 Feb. 1884, *F.C. Lehmann 3538* (AMES, B, BM, BR, G, K, LE, US, W).

ECUADOR: **Napo**: near Río Quijos, alt. 2100 m, collected by A. Andreetta, cultivated in Cuenca, 13 July 1977, *C. Luer 1693* (SEL); Cotundo, alt. 2000 m, July 1984, *A. Hirtz 1829* (MO). **Pastaza**: Río Negro, alt. 1300 m, 15 July 1983, *A. Hirtz 1039* (SEL). **Morona-Santiago**: below Sigsig, alt. 1700-2000 m, May 1877, *F.C. Lehmann 6529* (K); above Bomboiza, alt. 1500 m, collected by A. Andreetta, cultivated in Cuenca, 1 Nov. 1982, *C. Luer 2322E* (SEL). **Loja**: "Loja," collected by Dr. Krause, cultivated, 20 April 1874, by *Mr. Backhouse s.n.*

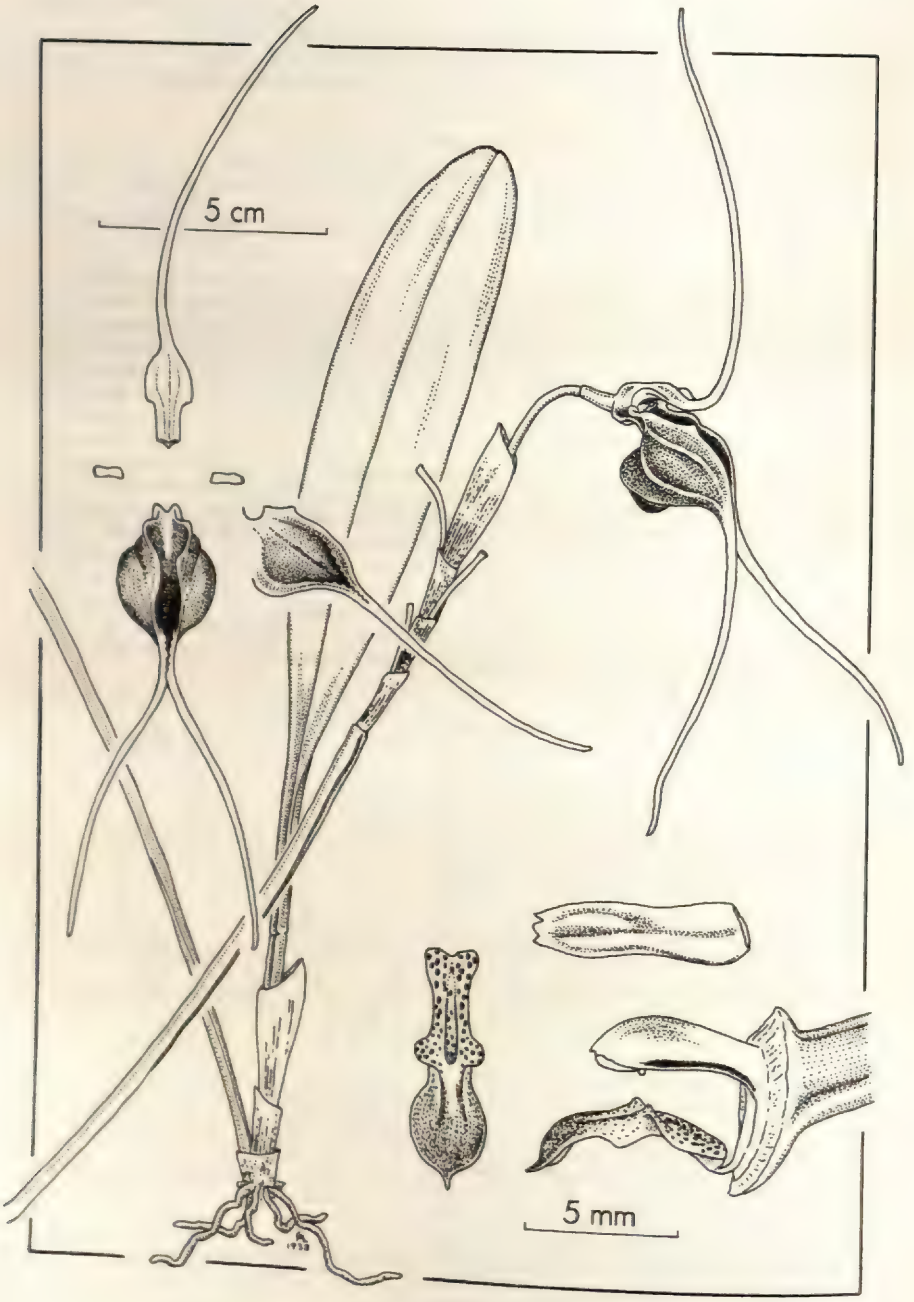



Plate 98. Masdevallia trochilus

(holotype of *M. acrocordonia*: W); "Loja," cultivated by Sander 1883, collected by *G. Hübsch s.n.* (W): without collection data, cultivated 1881 by *James O'Brien s.n.* (W); Rio Yambala above Vilcabamba, alt. 2400 m, Mar. 1982, *D. D'Alessandro s.n.* (SEL). **Zamora-Chinchipe**: between Loja and Zamora, alt. 1700 m, June 1958, *C.H. Dodson 244* (MO, SEL); between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13592* (MO).
PERU: **Amazonas**: Molinopampa, alt. 2300 m, 1983, *W. Köniğer, H. Königer & M. Arias K-81e* (MO, Herb. H. Königer); La Providencia, alt. 2300 m, collected by J. Meza, cultivated by B. Würstle at Spielberg, Germany, 1 Sept. 1984, *C. Luer 10432* (MO). **Junín**: Chanchamayo, collected by J. Meza, cultivated by B. Würstle at Spielberg, Germany, 1 June 1980, *C. Luer 5299* (SEL). Without collection data, purchased from J. Meza, cultivated by A. Maduro at Finca Dracula, Cerro Punta, Chiriquí, Panama, 14 Nov. 1998, *C. Luer 18981* (MO).

Gustav Wallis first discovered this well-known species in 1868 in the mountains above Sonsón in the Colombian department of Antioquia. It was very scantily described in Linden and André's sales catalogue in the spring of 1873, and quoted in the weekly *Gardeners' Chronicle*, only a few weeks before Reichenbach's Latin description was published with the name *M. ephippium*. This large species is widely distributed from central Colombia to central Peru.

In his *Xenia Orchidaceae* of 1874, Reichenbach published an account of *M. ephippium*, and on the same page he described as *M. acrochordonia* the plant collected in Ecuador by Dr. Krause. He distinguished the latter for smaller flowers with narrower, less involute sepals. Two variations are illustrated here.

*Masdevallia trochilus* is characterized by the large habit with thickly coriaceous leaves and a stout, considerably longer peduncle. The raceme produces a large flower on a long pedicel successively over a long period of time, often over one year. The sepals are connate into a proportionately short, cylindrical tube. The blade of the dorsal sepal is held forward, and the long, slender tail reflects abruptly. The lateral sepals are deeply connate into a concave synsepal that is inflated above the middle. The sides are variously involute, sometimes creating an egg-shaped synsepal with the interior hidden, and sometimes expanded with the interior exposed. The petals are callous along the lower half. The lip is pandurate with wing-like folds near the middle.

Plate 99. Masdevallia trochilus
(M. acrochordonia)

**Masdevallia tsubotae** Luer, Lindleyana 9: 114, 1994.

Ety: Named for Shigenobu Tsubota of Pereira, Colombia, who collected this species.

**Plant** medium to large in size, presumably epiphytic, caespitose; roots slender. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 11-13 cm long including the 2-2.5 cm long petiole, the blade elliptical, subacute to obtuse, 2.2-2.5 cm wide, the base narrowed into the channeled petiole. **Inflorescence** a congested 2-flowered raceme, the flowers often present simultaneously, borne by an erect, triquetrous peduncle 15-20 cm long, with a bract at the base, from low on the ramicaul; floral bracts tubular, imbricating, 16-18 mm long; pedicel 17-18 mm long; ovary 4 mm long; **sepals** glabrous extemally, microscopically cellular-glandular within, subcarinate, the dorsal sepal yellow, the blade ovate, ca. 18 mm long, 7 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical tube, the free portion triangular, acute, acuminate into a forwardly directed, yellow tail ca. 33 mm long, the lateral sepals red-purple, connate 18 mm into an ovate, bifid lamina, 23 mm long, 16 mm wide, the apices acute, contracted into slender, yellow tails 20 mm long; **petals** white, oblong, 7 mm long, 2 mm wide, the apex subacute, minutely notched, the labellar margin with a low, longitudinal callus ending in a low, rounded process at the base; **lip** red, oblong, 7 mm long, 2 mm wide, with the margins minutely erose above the middle, with a pair of prostrate, rounded wing-like folds below the middle, the apex thick, verrucose, narrowly obtuse, deflexed, minutely apiculate, the disc shallowly sulcate between the folds, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long, with a short, incurved extension.

COLOMBIA: Without collection data, purchased from Eva Orchids, Pereira, Colombia, 1989, by Jan A.C. Schoonen, cultivated in Putte, The Netherlands, Sept. 1991, *C. Luer 15515* (Holotype: MO).

This species, unfortunately without collection data, probably originated from central Colombia. No other collections have been seen.

*Masdevallia tsubotae* is among the several species of this section characterized by the apices of the synsepal being separated by an acute angle, and with slender tails about as long as the blade. It is most similar to *M. zumbae* that differs with short tails, to *M. carruthersiana* that differs with the sulcate synsepal with recurved sides, and to *M. vargasii* that differs with the unusually large lip.

The petals are oblong and simply callous on the lower half. The lip is oblong with small, rounded, marginal folds below the middle and a thick, decurved apex.

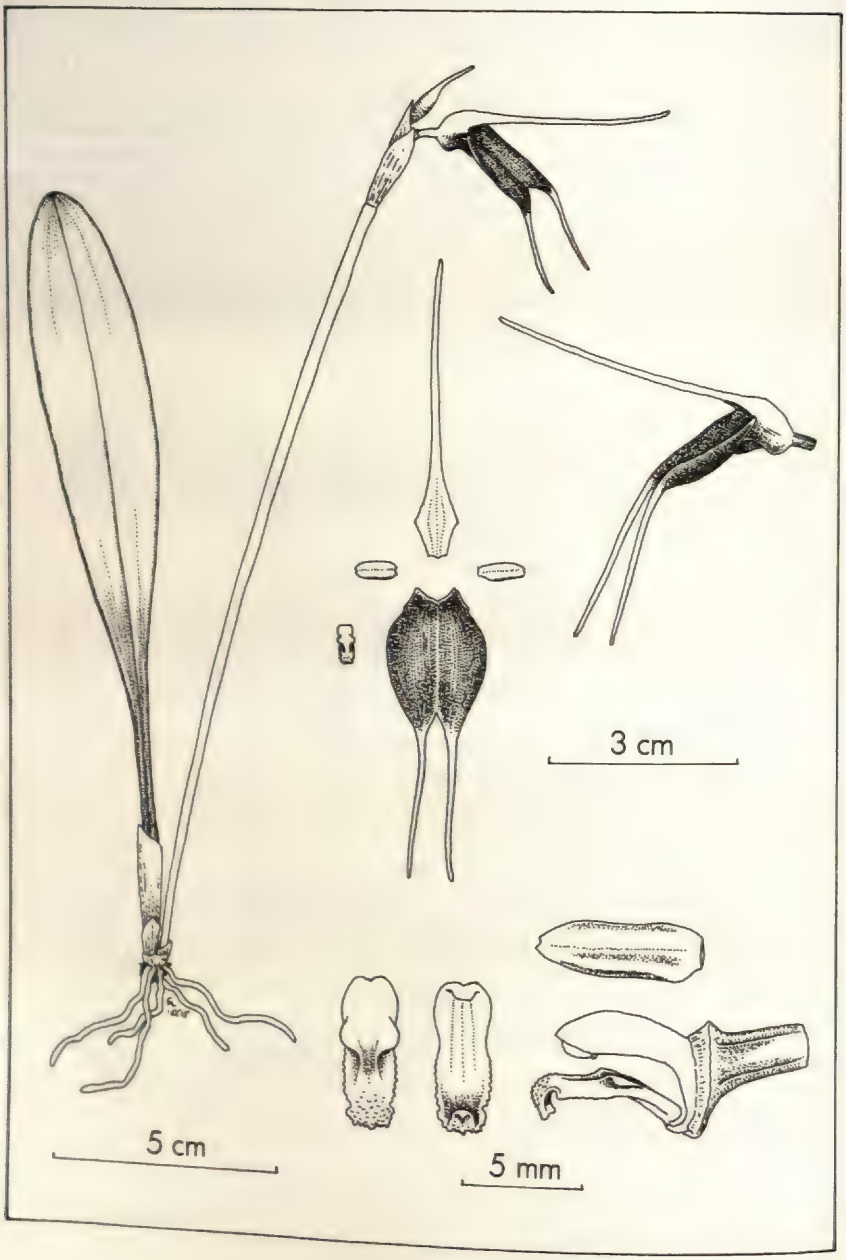



Plate 100. Masdevallia tsubotae

**Masdevallia vargasii** C.Schweinf., Amer. Orchid Soc. Bull. 19: 34, 1950.

Ety.: Named in honor of its discoverer, Dr. Carlos Vargas of Cuzco.

Syn.: *Masdevallia richteri* Pabst, Bradea 2: 52, 1975.

Ety.: Named in honor of Rudolf Richter, Brazilian orchid enthusiast.

Syn.: *Masdevallia megaloglossa* Luer & Escobar, Orquideología 15: 134, 1982.

Ety.: From the Greek *megaloglossa*, "a large lip," referring to the size of the labellum.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2 cm long, enclosed by 1-2 close, tubular sheaths. **Leaf** erect, coriaceous, 6-12 cm long including a petiole 1-3.5 cm long, the blade elliptical, subacute to obtuse, 1.5-2.5 cm wide, narrowly cuneate below into the petiolate base. **Inflorescence** a congested, successively several-flowered raceme up to 3 cm long, borne by an erect to suberect, triquetrous peduncle 8-17 cm long, with a bract at the base, from the base of a ramicaul; floral bracts white, imbricating, 8-12 mm long; pedicels 7-12 mm long; ovary 5-6 mm long; **sepals** yellow, veined and suffused in varying degrees with brown or purple, glabrous, the blade of the dorsal sepal obovate, 15-20 mm long, 8-9 mm wide, connate to the lateral sepals for 10-11 mm to form a cylindrical tube, the free portion triangular with the acute apex gradually contracted into a slender (occasionally thickened distally), yellow tail ca. 25 mm long, the entire length 40-55 mm long, the lateral sepals 37 mm long including the "tails," connate 23-25 mm into an ovate, bifid lamina 16-19 mm wide, 3-veined, the narrowly triangular free portions approximate, ca. 10 mm long; **petals** light yellow with a purple midvein, oblong, 9 mm long, 2.75 mm wide, the apex acute, more or less apiculate, the labellar half speckled with purple, longitudinally callous, ending in a low, rounded callus above the base; **lip** yellowish, diffusely dotted with purple-brown and usually with the 3 longitudinal veins prominently marked with purple-brown, oblong, 10-12 mm long, 4-5 mm wide, with oblique folds on the disc near the middle, the apex subacute, minutely denticulate, subverrucose, the base subcordate, hinged below; **column** light green or yellow, suffused with purple along the margins, semiterete, 7-8 mm long, the foot stout with a short, incurved extension.

PERU: **Cuzco**: Paucartambo: Santa Isabel, Cosnipata, alt. 1800 m, 4-5 Jan. 1946, *C. Vargas 5528* (Holotype: Herb. Vargas; Isotypes: AMES, USM). **Junín**: Tarma: near Huacapistani, alt. ca. 1500 m, 10 July 1967, *D. Bennett 378* (SEL).

BOLIVIA: **La Paz**: Sur Yungas, without more specific locality, collected by Dino Menato, cultivated in Chulumani, 1 Feb. 1980, *C. Luer 5038* (SEL). **Cochabamba**: Chapare, epiphytic in wet forest southwest of Villa Tunari, alt. 500 m, 15 Jan. 1982, *C. Luer, J. Luer, R. Vásquez, B. Würstle & S. Würstle 7438* (SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13293* (MO). old road from Villa Tunari to Cochabamba, alt. 1000 m, 30 Jan. 1997, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 18319* (MO).

BRAZIL: **Amazonas**: without collection data, cultivated, 10 Apr. 1961, by *A. Ghillany s.n.* (holotype of *M. richteri*: HB).

ECUADOR: **Morona-Santiago**: near Río Calagrás, alt. 1500, collected by A. Andreetta & M. Portilla, cultivated at Paute, 16 May 1988, *C. Luer 13375* (MO); north of Gualaquiza, Tumbes, alt. 1900 m, 14 Feb. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1912* (MO). **Pastaza**: above Mera, alt. 1200 m, 1985, *A. Hirtz 2476* (MO). **Zamora-Chinchipe**: south of Zamora, La Pituca, alt. ca. 600 m, collected by D. D'Alessandro, cultivated at Predesur in Vilcabamba, 10 May 1981, *C. Luer 6131* (SEL).

COLOMBIA: **Putumayo**: Mocoa, Río Macoa, alt. 700-900 m, collected by J.M. Sema, 26 Aug. 1977, cultivated by M. & O. Robledo at La Ceja, 12 July 1979, *R. Escobar 1984* (holotype of *M. megaloglossa*: JAUM); same collection, cultivated at Colomborquídeas, 8 Apr. 1988, *C. Luer 13022* (MO). **Vaupes**: Río Vaupes, Tipiaca, Murutinga between Mitú and Javareté, alt. ca. 200 m, 14-24 May 1953, *R. E. Schultes & I. Cabrera 19298a* (AMES, COL).

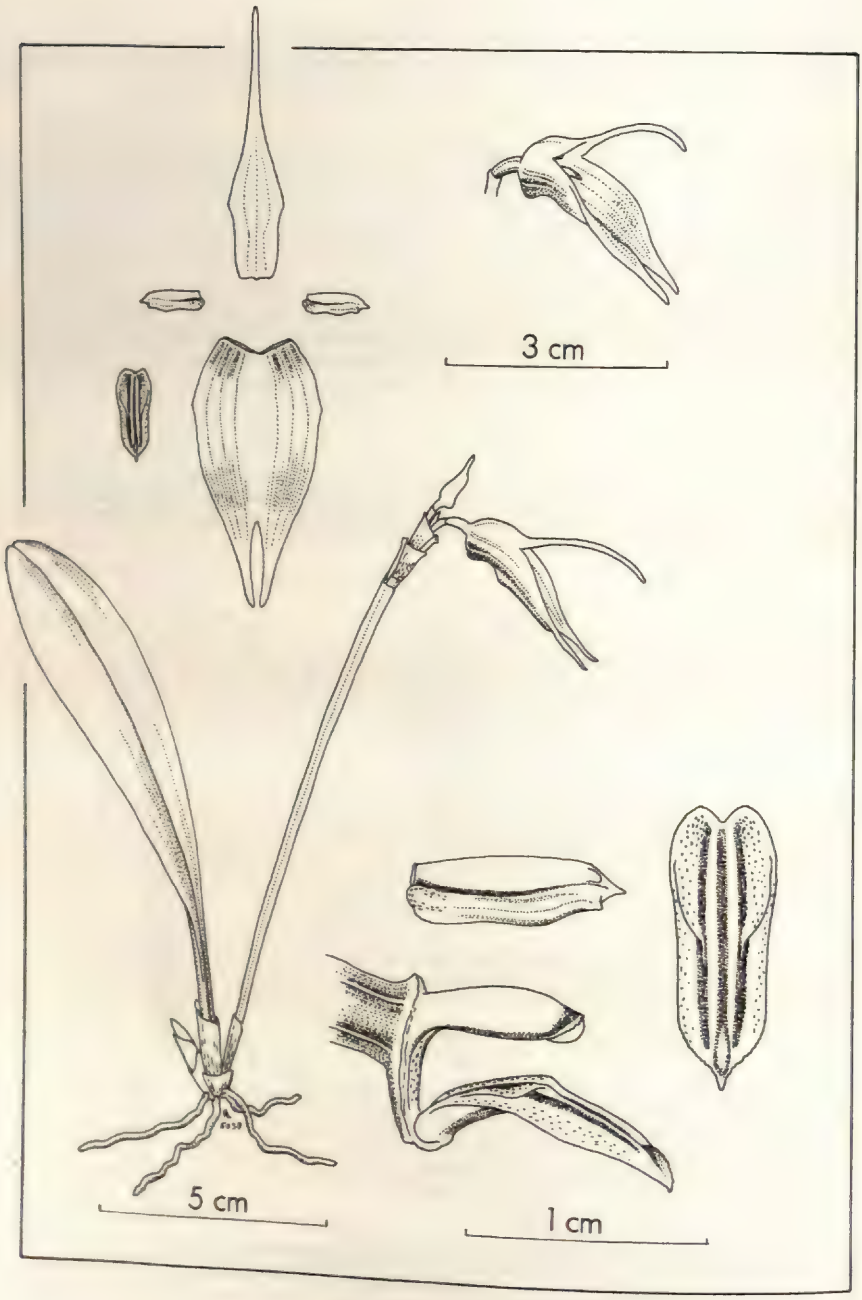



Plate 101. Masdevallia vargasii

This species is widely distributed, occurring locally in forests of relatively low altitudes of the western slopes of the Andes from southern Colombia and Amazonian Brazil to central Bolivia. It is somewhat variable in dimensions and color through this wide distribution.

Vegetatively similar to the majority of the medium-sized species of the section, *M. vargasii* is recognized by the peduncle as long as or longer than the leaves, and a relatively large flower produced in slow succession in a congested raceme. The sepals are yellowish and variously suffused with purple, often with purple along the veins. The sepals are connate into a cylindrical tube beyond which the connate lateral sepals expand into a bifid synsepal. The apices are narrowly triangular and nearly approximate. The petals are oblong with the callus along the lower half terminating in a low, rounded swelling. The very large, oblong lip, more than one centimeter long, and with poorly developed marginal folds, usually bears three purple stripes.

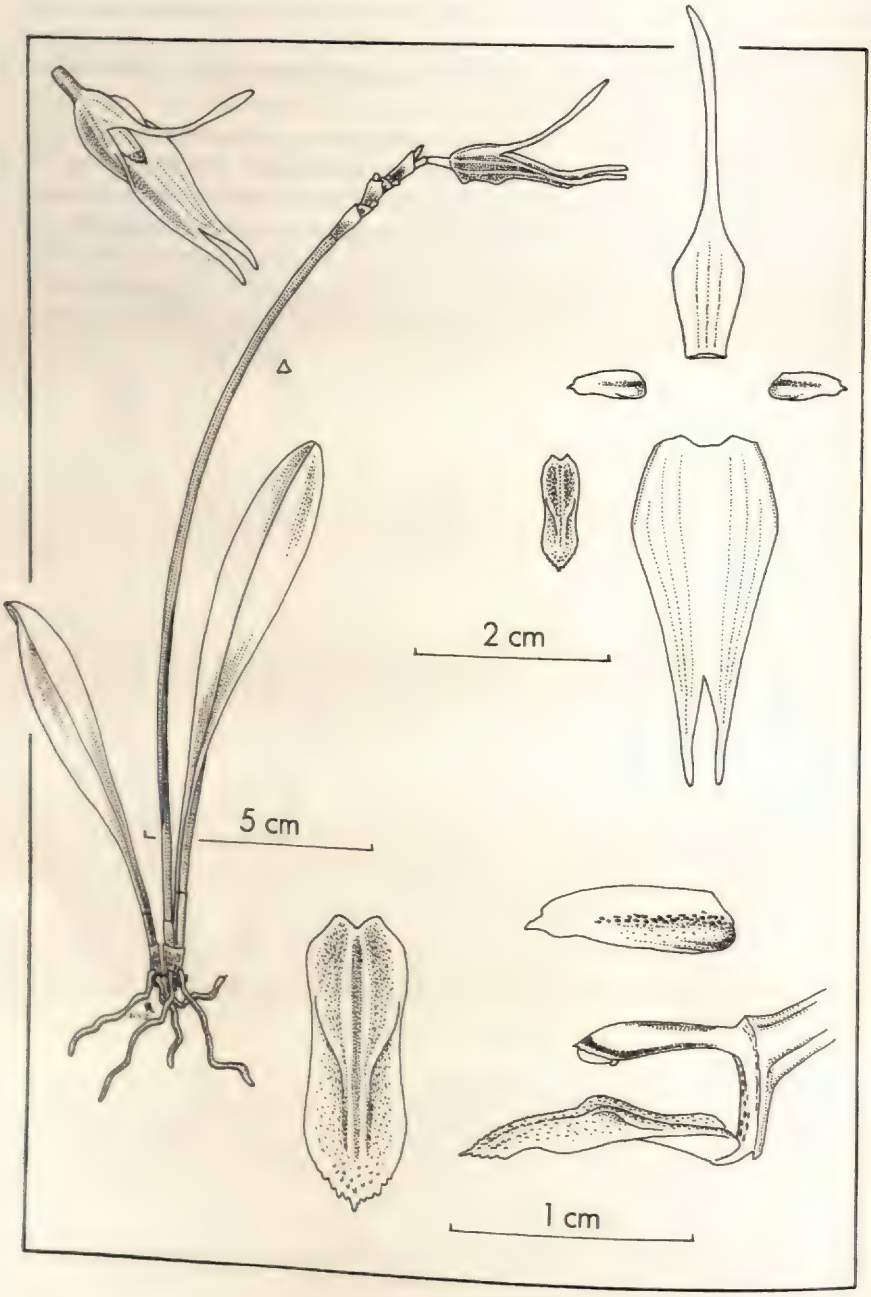



Plate 102. Masdevallia vargasii

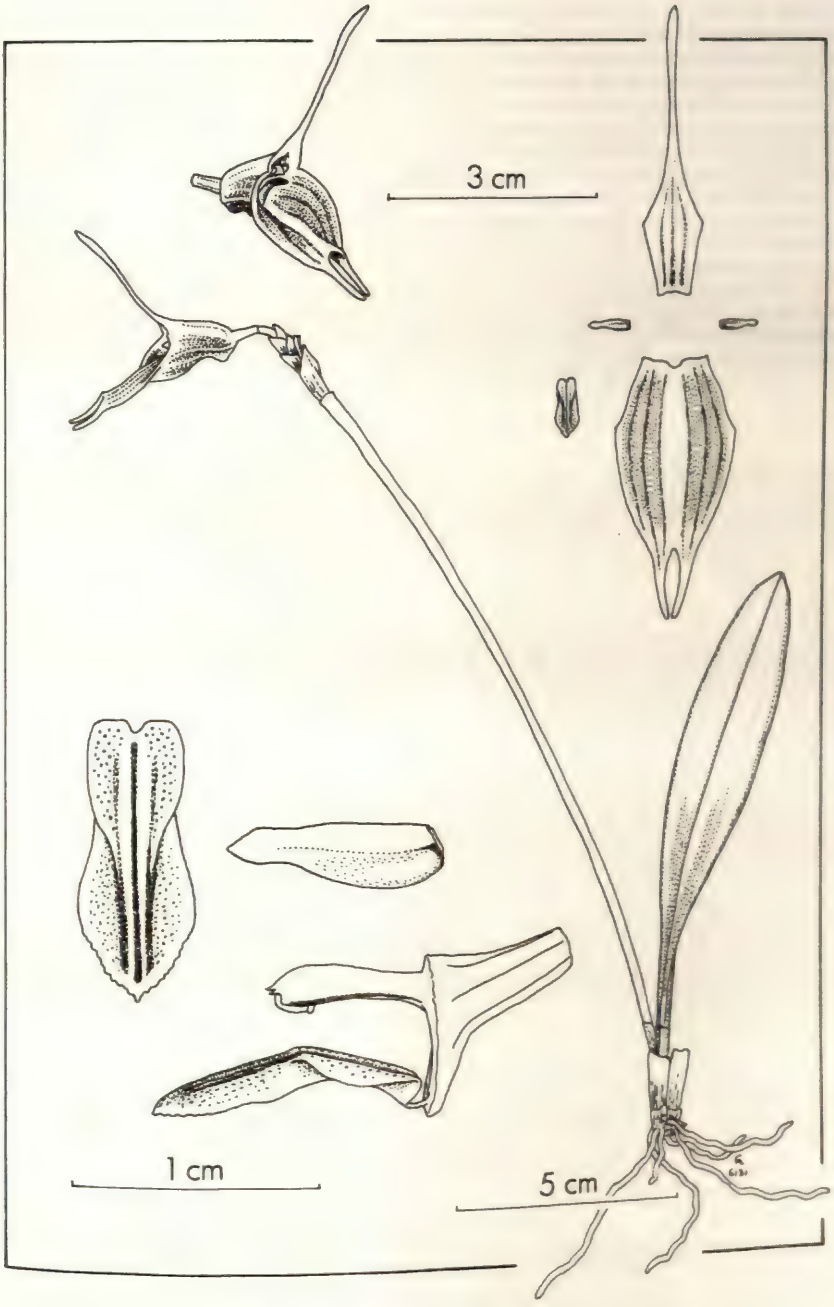



Plate 103. Masdevallia vargasii

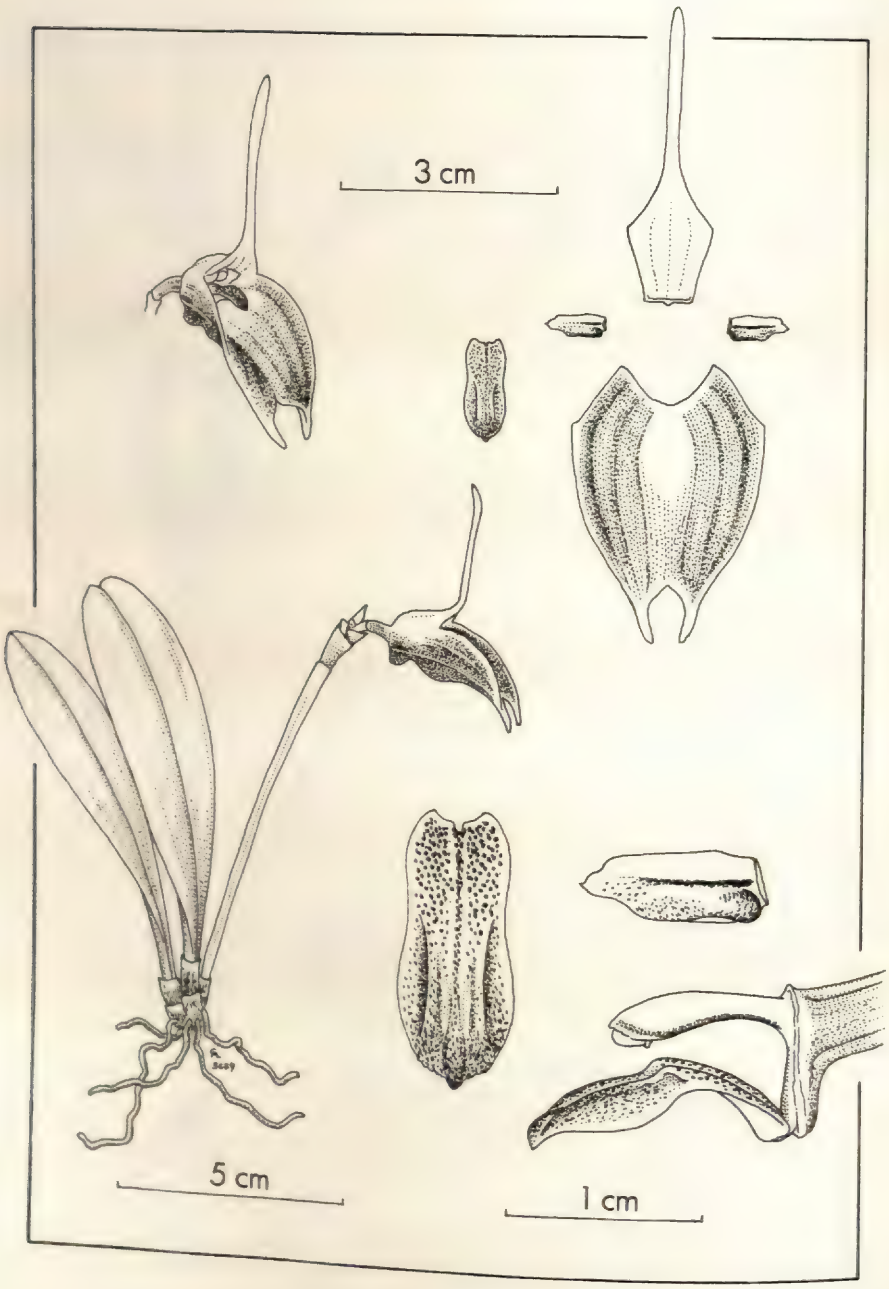



Plate 104. Masdevallia vargasii
(M. megaloglossa)

**Masdevallia virens** Luer & Andreetta, Phytologia 47: 71, 1980.

Ety.: From the Latin *virens*, "green," referring to the color of the flower.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, 1-1.5 cm long, enclosed by 2-3 loose, imbricating sheaths. **Leaf** erect, coriaceous, shortly petiolate, 6-9 cm long including the petiole 1.5-2 cm long, the blade elliptical, subacute, 1.3-1.9 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a succession of single flowers in a congested, few-flowered raceme borne by a slender, erect, triquetrous peduncle 12-14 cm long, with a bract near the base, from low on the ramicaul; floral bract white, papery, imbricating, 9-10 mm long; pedicel 9-10 mm long; ovary 5 mm long; **sepals** light green, glabrous externally, glandular-pubescent within, lightly suffused with pale brown toward the center, the dorsal sepal obovate, 10 mm long, 7 mm wide, connate to the lateral sepals for 5 mm to form a laterally compressed sepaline tube, the obtuse, free portion contracted into a thick, semiterete, antrorse tail 15 mm long, 2 mm wide, the lateral sepals ovate, oblique, 24 mm long to the apex, 8 mm wide, connate 8 mm, the broad apices prolonged into thick, acute, antrorse tails 15 mm long, 3-5 mm wide; **petals** yellow-white, oblong, 6.5 mm long, 2 mm wide, the apex acute with thickened margins, the labellar margin with a low, longitudinal carina ending in a low, rounded callus above the base; **lip** light yellow, oblong, 6.5 mm long, 2.25 mm wide, with low, marginal folds near the middle, the epichile obtuse with a low, midline callus, the disc shallowly sulcate, the base subcordate, hinged beneath; **column** yellow, suffused with red-purple below the middle, semiterete, more or less clavate, 5.5 mm long, the foot purple, 2 mm long, with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: Valle del Zamora, El Pangui, alt. 1200 m, Nov. 1978, collected by A. Andreetta, A. Botta & M. Portilla 1749, cultivated in Cuenca, 27 Sept. 1980, *C. Luer 5450* (Holotype: SEL); same collection, cultivated at Paute, 24 May 1988, *C. Luer 13665* (MO). **Morona-Santiago**: above Gualaquiza, collected by Sánchez and Vásquez, cultivated at the University of Cuenca, Feb. 1993, *A. Hirtz 5921* (MO).

This species is apparently endemic and uncommon in southeastern Ecuador. It is characterized by the medium-sized habit with the peduncle surpassing the leaves. The fleshy, green flowers are produced successively in a congested raceme. The sepals are connate into a sepaline tube that is more or less laterally compressed with the lateral sepals shallowly connate, less than half their length. The three free portions of all three sepals are antrorse and broad, scarcely tail-like.

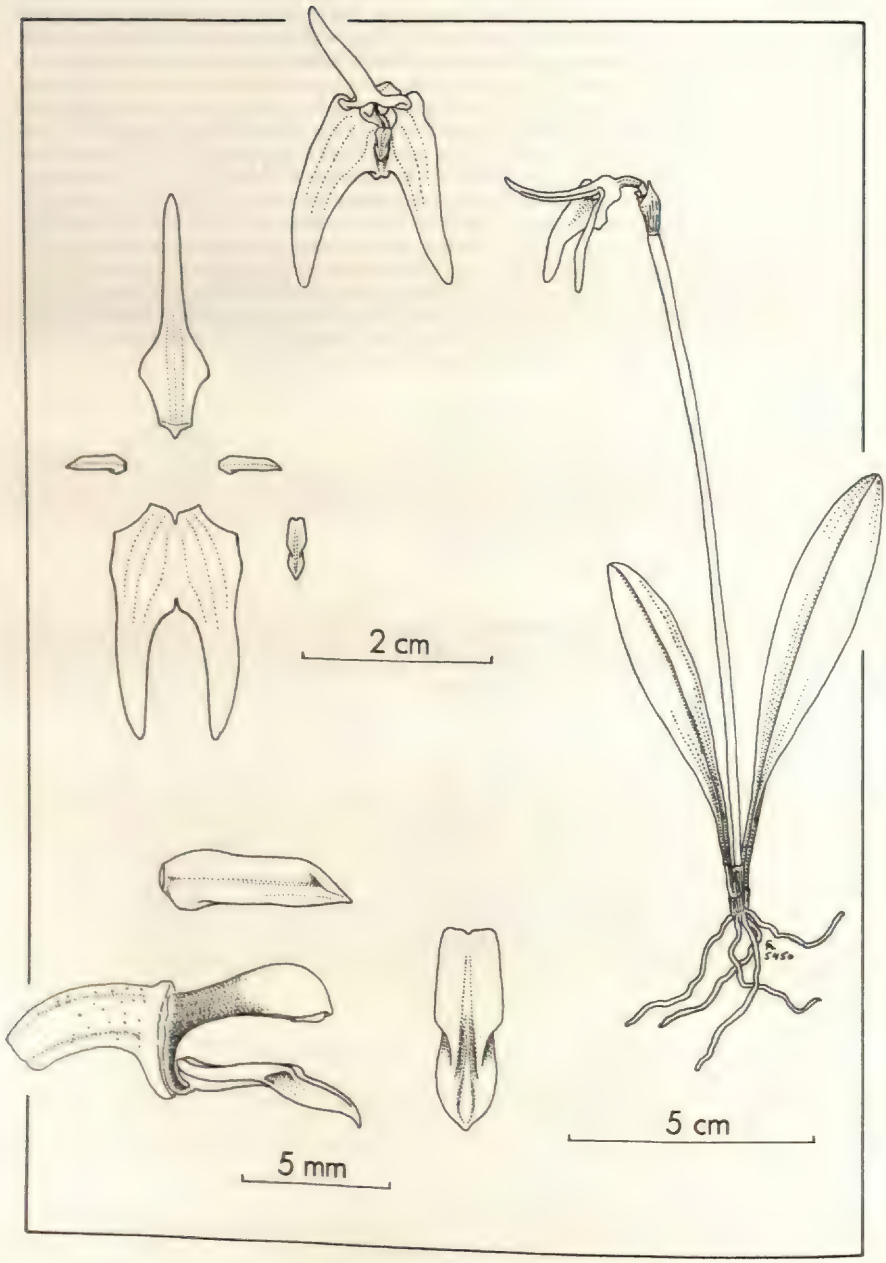



Plate 105. Masdevallia virens

**Masdevallia virgo-cuencae** Luer & Andreetta, Phytologia 39: 232, 1978.

Ety.: From the Latin *virgo*, "a maiden," and *Cuencae*, "of Cuenca," a translation of the local "chola cuencana," the maiden of Cuenca.

**Plant** medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute, 8-12 cm long, 2-3 cm wide, cuneate below into a channeled, indistinctly petiolate base. **Inflorescence** a congested, successively several-flowered raceme up to 2 cm long, borne by a stout, erect, triquetrous peduncle 14-21 cm long, 6 mm wide at the apex, subtended by a tubular bract, from the base of a ramicaul; floral bracts thin, tubular, imbricating 8-17 mm long; pedicel 17-28 mm long; ovary 5 mm long; **dorsal sepal** yellow, minutely speckled with red within, obovate, concave, 30 mm long, 10-11 mm wide, connate to the lateral sepals for 15 mm to form a broad, arcuate, sepaline tube, the free portion triangular, deflexed, the acute apex produced into a slender, recurved, orange tail ca. 35 mm long; **lateral sepals** light purple, darker purple in stripes along the nerves, cellular-papillose within, connate 30 mm into a deflexed, elliptical, bifid lamina 40 mm long, 25 mm wide, the acute apices approximate, produced into slender, green tails ca. 15 mm long; **petals** white, oblong, 7.5 mm long, 3 mm wide, the obtuse apex obscurely toothed, the lower half with a low, longitudinal callus; **lip** white, diffusely flecked with purple, oblong-subpandurate, 6 mm long, 2 mm wide, with obtuse marginal folds near the middle, the epichile ovate, acute, denticulate, papillose, the hypochile oblong, thickened, the base rounded, hinged below; **column** white, edged in purple, semiterete, 5.5 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Azuay**: epiphytic in a valley above Machangara northwest of Cuenca, alt. 2700 m, Feb. 1977, collected by A. Andreetta, cultivated in Cuenca, 12 July 1977, *C. Luer 1688* (Holotype: SEL); same collection, cultivated at Paute, 24 May 1988, *C. Luer 13636* (MO).

Long known from only descendents of one original plant, this showy species remains a rare species in the wild. However, it is now widely cultivated following successful propagation by seed.

The large flower is borne successively in a congested raceme by a tall, triquetrous peduncle. The sepals are connate into a proportionately short, cylindrical tube. The long tail of the yellow dorsal sepal curves gracefully upward while the broadly expanded, velvety rose synsepal, commonly more or less twisted and terminated by a pair of short, approximate tails, descends. The petals are oblong with the lower half callous without a protuberance. The lip is oblong with obtuse folds at the middle, and with the epichile spiculate.

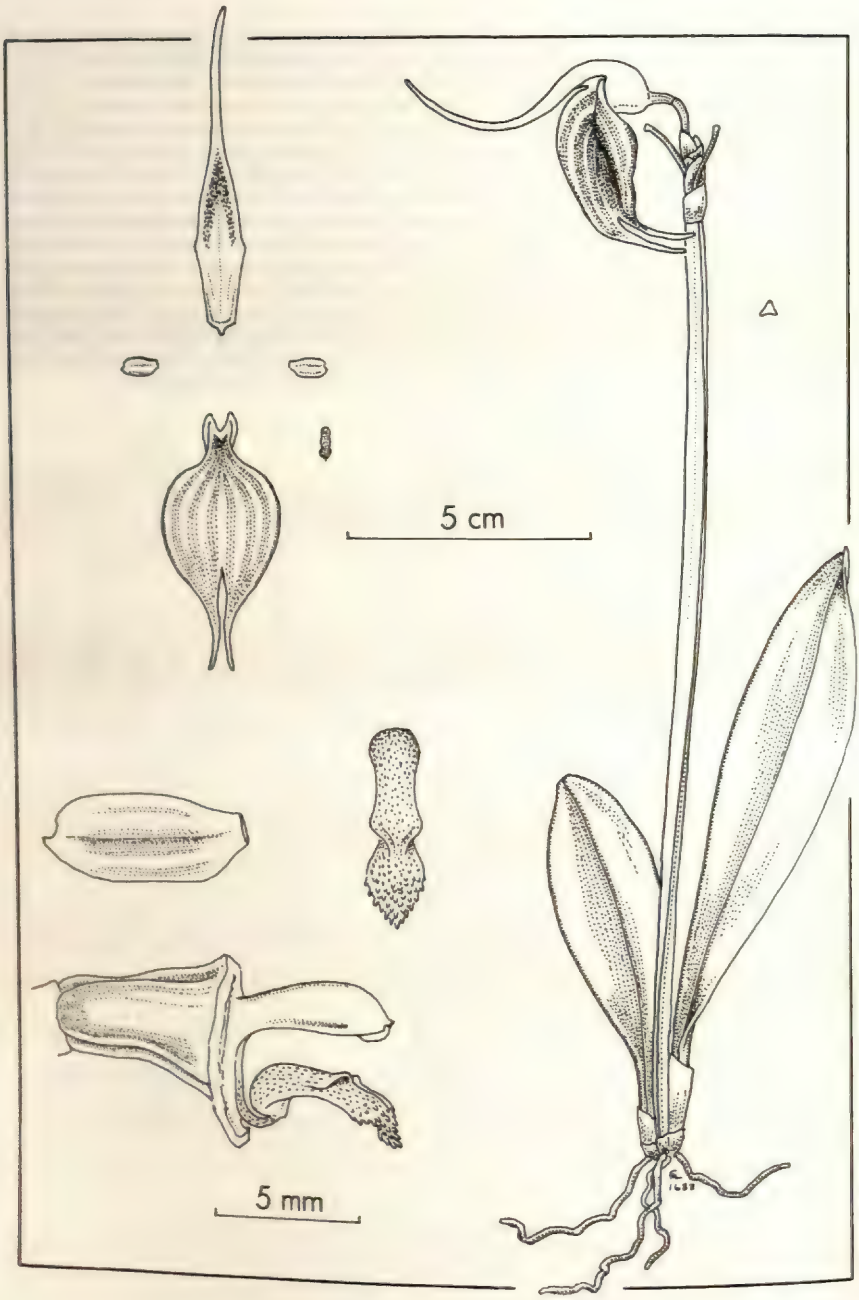



Plate 106. Masdevallia virgo-cuencae

**Masdevallia vomeris** Luer, Harvard Papers in Botany 2: 64, 1997.

Ety.: From the Latin *vomeris*, "of a plow-share," in allusion to the apical callus of the lip.

**Plant** medium in size, caespitose; roots fleshy. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, subpetiolate, 7-8 cm long including an indistinct petiole ca. 1 cm long, the blade narrowly elliptical, acute, 0.9 cm wide, the base gradually narrowed below to the base. **Inflorescence** a single flower borne successively in a congested, few-flowered raceme; peduncle erect, slender, sharply triquetrous below, obscurely triquetrous above, spotted with purple, 21 cm long, from low on the ramicaul; floral bracts tubular, imbricating, 10 mm long; pedicel 22 mm long, spotted with purple; ovary green, 3 mm long; **sepals** fleshy, glabrous externally, minutely papillose within, the dorsal sepal yellow-green, the blade ovate, 10 mm long, 5 mm wide, connate to the lateral sepals for 4.5 mm to form a gaping sepaline cup, the apex acute, attenuated into a slender, recurved tail ca. 25 mm long, the lateral sepals red-purple, connate 10 mm into an oblong-ovate, bifid synsepal, 15 mm long, 13 mm wide, shallowly concave below the middle, the apices subacute, contracted into slender, yellow-green tails 14 mm long; **petals** white, oblong-ovate, 6 mm long, 1.5 mm wide, with the apex acute, acuminate, the labellar half with a low, longitudinal callus terminating in a rounded callus at the base; **lip** oblong-pandurate, with acute, marginal folds above the middle, 5 mm long, 2 mm wide, the epichile orange, dotted with red-purple, minutely papillose, rounded with recurved margins, with a tall, acute, antrorse, gnomen-like keel, the apex abruptly long-acuminate, the hypochile oblong, white, spotted with red-purple, shallowly channeled, the base truncate, hinged on the end; **column** greenish white suffused with rose, semiterete, 4.5 mm long, the foot 2 mm long, with an incurved extension.

PERU. Without collection data, obtained from M. Arias, Feb. 1995, cultivated by J & L Orchids, 876-519, in Easton, CT, 7 Aug. 1996, *C. Luer 17991* (Holotype: MO).

This species, apparently endemic in Peru, is distinguished by narrow, acute leaves that are far exceeded by a slender peduncle that is only slightly triquetrous toward the congested raceme. The flower is relatively small with a long, recurved tail of the dorsal sepal and shorter tails of the synsepal. From the short sepaline tube the synsepal is expanded. The petals are narrow and acute with a rounded callus at the base. The lip is pandurate with a tall, pointed callus like a plow-share just above a long-apiculate apex.

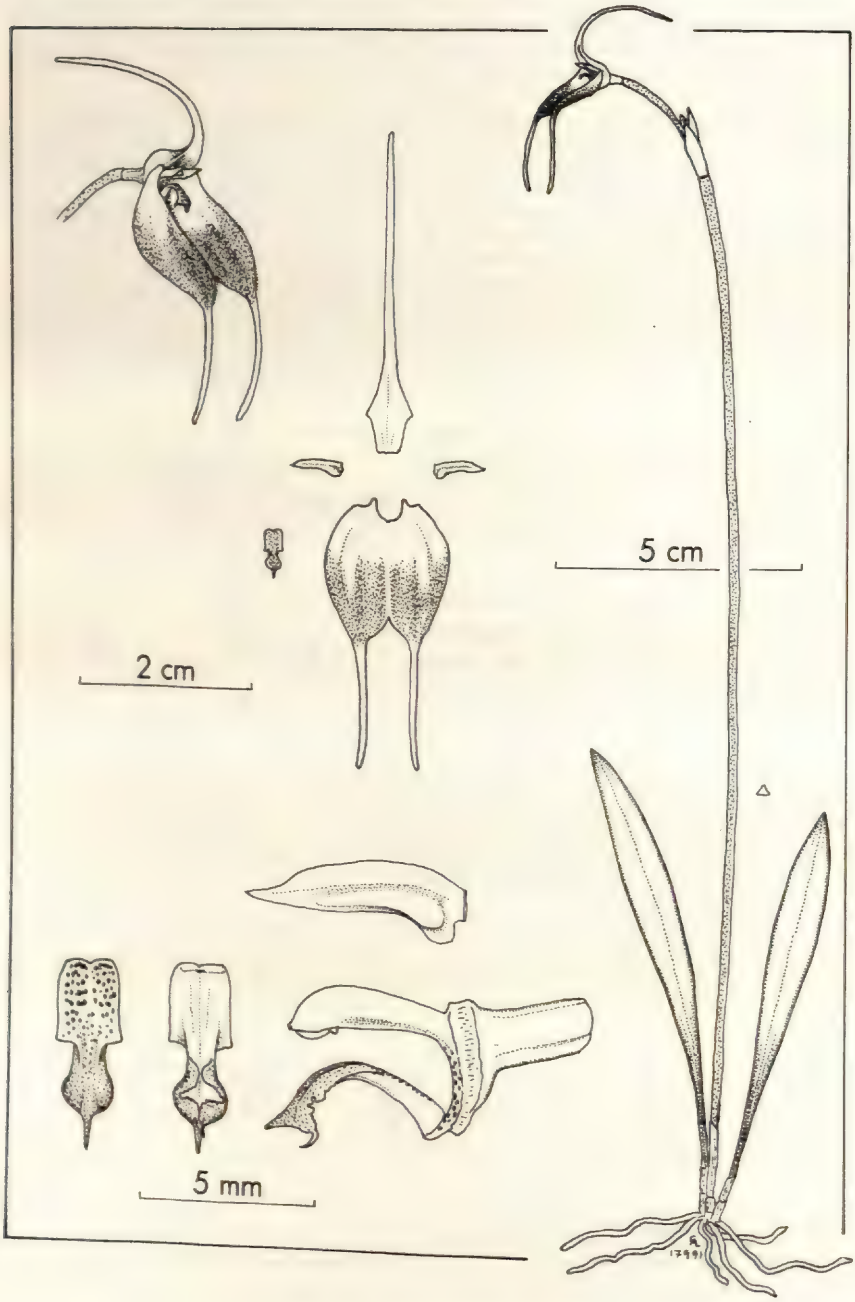



Plate 107. Masdevallia vomeris

**Masdevallia weberbaueri** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 62, 1921.

Ety.: Named in honor of August Weberbauer, German botanist, who discovered this species.

Syn.: *Masdevallia moyobambae* Königer, Die Orchidee 31: 116, 1980; emend. 36: 87, 1985.

Ety.: Named for the community of Moyobamba where the species was found.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, 7-15 cm long including the petiole 1.5-3 cm long, 1.5-2.2 cm wide, the apex subacute, the base gradually narrowed into the petiole. **Inflorescence** a succession of single flowers borne in a congested raceme by a stout, erect triquetrous peduncle, 9-23 cm long, with a bract at the base, from the base of a ramicaul; floral bracts tubular, imbricating, 7-10 mm long; pedicels 8-10 mm long; ovary 4-5 mm long; **sepals** rigid, fleshy, more or less shortly pubescent within, the dorsal sepal yellow, obovate, 22-26 mm long including the tail, 7 mm wide, connate to the lateral sepals for 9 mm to form a campanulate, sepaline tube, the apex subacute, contracted into a thick, erect tail 10-12 mm long, the lateral sepals yellowish, suffused with purple, ovate, oblique, 20-25 long, connate to each other for 15 mm to form a broadly elliptical, shallowly gibbous synsepal, ca. 18 mm wide expanded, the subacute apices contracted into short, thick tails 3-8 mm long; **petals** yellow-white, cartilaginous, oblong, 6.5 mm long, 2 mm wide, the apex obtuse, sharply notched, with a low callus along the labellar margin ending in a low, rounded swelling above the base; **lip** white, densely spotted with dark purple, thick, subpandurate, 7 mm long, 3 mm wide, with obtuse, marginal folds above the middle, the epichile obovate, obtuse, verruculose, minutely denticulate, more or less recurved, the hypochile flat, oblong, subcordate at the base, hinged beneath; **column** yellow-white, semiterete, 5 mm long, the foot thick, 2 mm long, with a short, incurved extension.

PERU: **Cajamarca**: Jaen, valley of the Río Tabaconas, alt. 900-950 m, April 1912, *A. Weberbauer 6153* (Holotype presumably destroyed at B, Lectotype here designated: AMES); same area, alt. 850 m, 21 Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer & M. Arias 5405* (SEL); same collection, cultivated by W. Königer in Munich, Germany, 15 Sept. 1982, *C. Luer 8146* (SEL). **San Martín**: alt. 800 m, *L. Moore 3090* (AMES); vicinity of Moyobamba, alt. 1000 m, *M. López s.n.* (holotype of *M. moyobambae*: SEL; clonotype: K); same collection, cultivated in Munich, Germany, Nov. 1979, by *W. Königer s.n.* (K, M, SEL, USM, W, Herb. H. Königer), C. Luer illustr. 4861; between Tarapoto and Lamas, alt. 860-1000 m, collected by R. Galuez, 15 Mar. 1988, *D. Bennett 3893* (MO). **Loreto**: near Boquerón Padre Abad, alt. 550 m, *M. Arias A-22a* (K, M, SEL, USM, W, Herb. H. Königer); same collection, cultivated in Munich, Germany, by W. Königer, 19 Sept. 1981, *C. Luer 6501* (SEL).
ECUADOR: **Zamora-Chinchipe**: above Zumba, El Chorro, alt. 1100 m, collected by A. Andreetta and Luis Morocho, cultivated at Paute, 24 Jan. 1989, *C. Luer 14062* (MO).

This species is relatively frequent and widely distributed at low altitudes in northern Peru and adjacent Ecuador. Related to the variable *M. cuprea*, *M. weberbaueri* is distinguished by the longer leaves and peduncles. The yellowish dorsal sepal is connate to the purplish, deeply connate synsepal to form a more or less campanulate flower. The tail of the dorsal sepal stands erect. The apices of the lateral sepals are obtuse and contracted into short, broad "tails," longer than those of *M. cuprea*. The oblong petals are callous on the lower half without a projection, and the lip is simply oblong with marginal folds above the middle.

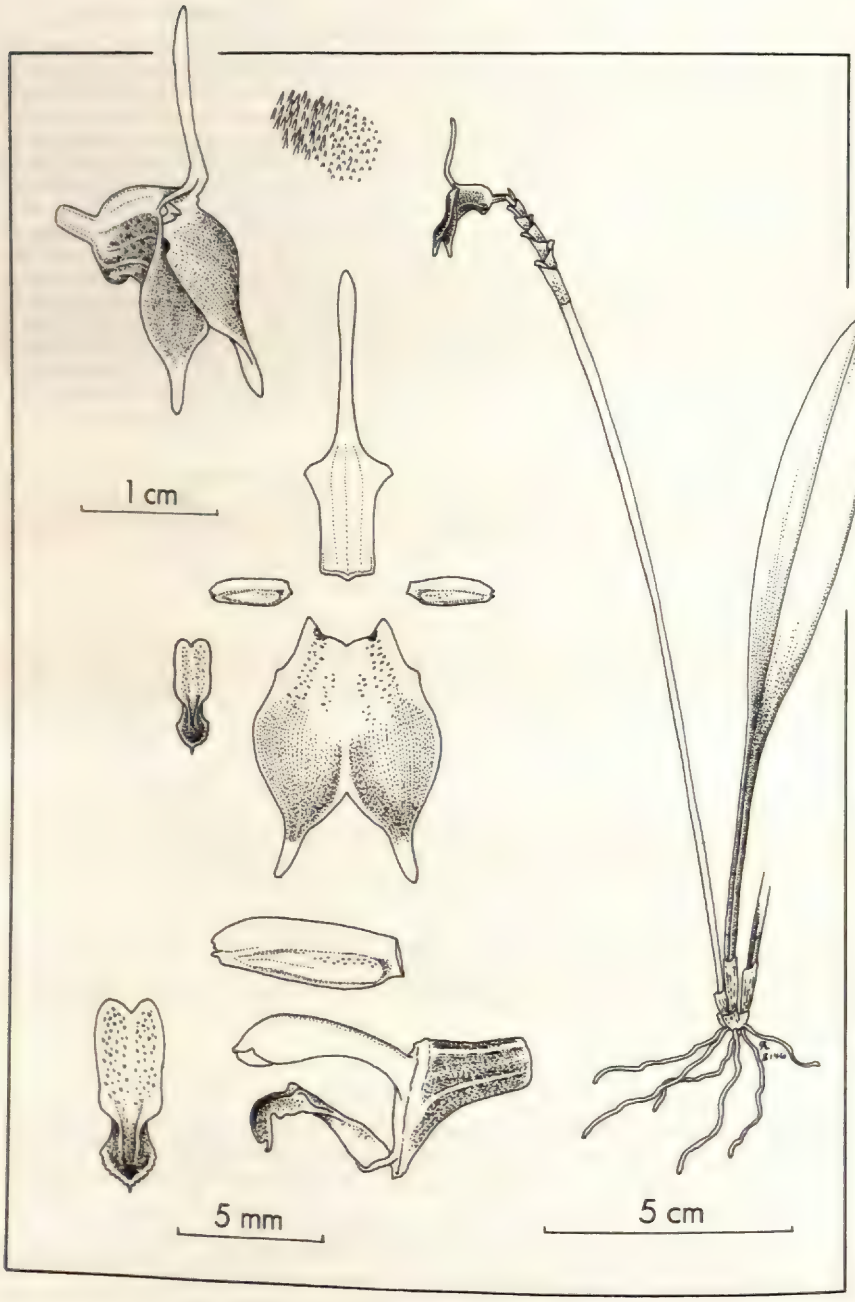



Plate 108. Masdevallia weberbaueri

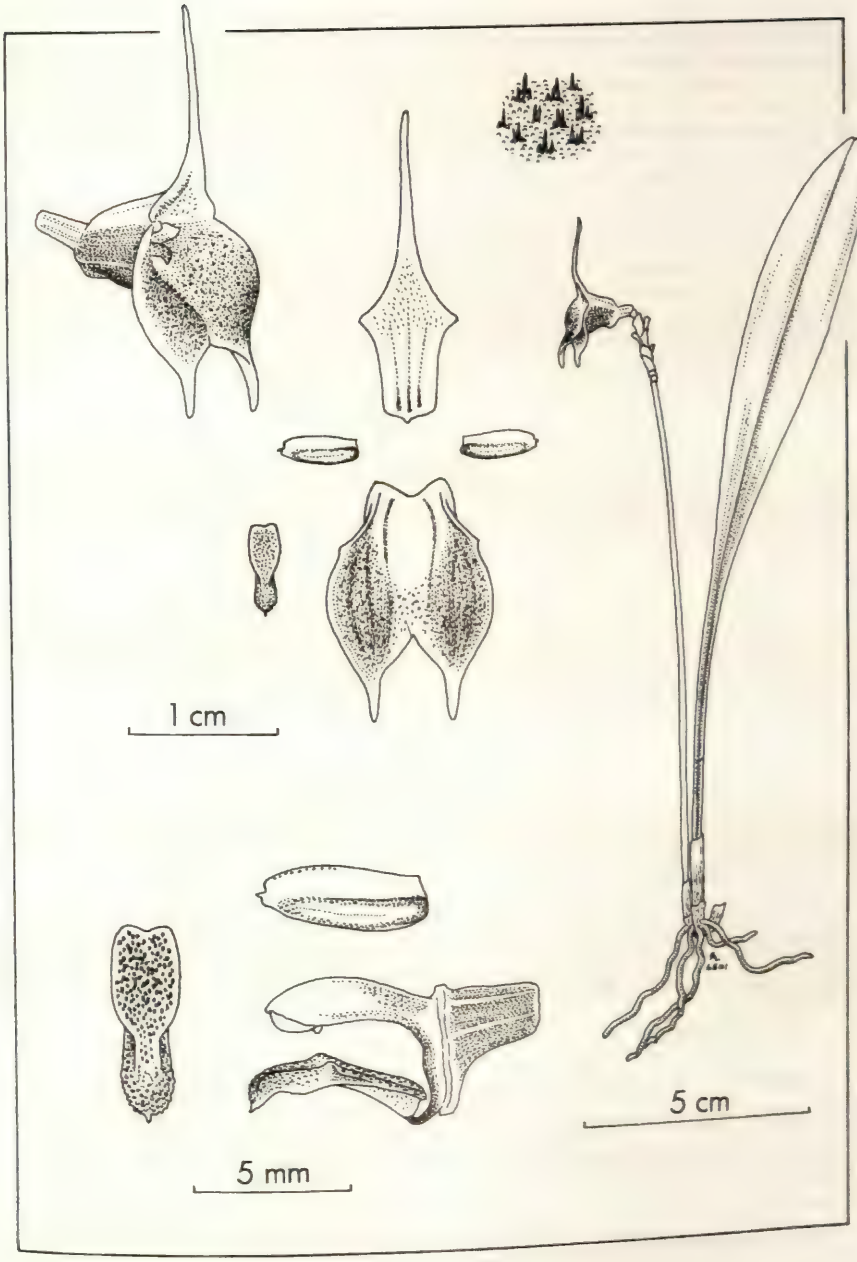



Plate 109. Masdevallia weberbaueri

**Plate 110. Masdevallia weberbaueri**
(M. moyobambae)

**Masdevallia whiteana** Luer, Phytologia 39: 234, 1978.

Ety.: Named in honor of Dr. William E. White of Anniston, Alabama, who submitted the species to the Orchid Identification Center of the American Orchid Society.

**Plant** medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls stout, 1-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-obovate, 7-15 cm long, 1.5-2.5 cm wide, the apex subacute to obtuse, gradually narrowed below into an indistinct, channeled petiole 1.5-2.5 cm long. **Inflorescence** a succession of single flowers produced in a congested raceme up to 10 cm long, borne by an erect, sharply 3-angled peduncle 14-26 cm long, from near the base of a ramicaul; floral bracts white, imbricating, 10-15 mm long; pedicels 10-18 mm long; ovary 3-5 mm long; **sepals** dark purple to brownish purple, orange or greenish toward the base, fleshy-rigid, the dorsal sepal elliptical, verrucose within, 23 mm long, 11 mm wide, connate to the lateral sepals for 10-12 mm to form a laterally compressed, rectangular sepaline tube, the free portion ovate, the sub-acute apex contracted into the forwardly directed, yellow tail 7-10 mm long, the lateral sepals connate ca. 17 mm into a deep, rigidly compressed synsepal 17 mm long, 8 mm wide unexpanded, 10 mm deep, with the margins in apposition above the junction with the dorsal sepal and below the emergence of the tails, and forming a deep, obtuse, secondary mentum midway between the base and the emergence of the approximate tails 7-10 mm long; **petals** white, oblong, 7-8 mm long, 2-2.3 mm wide, the obtuse apex bilobed and slightly twisted, with a low, longitudinal callus along the labellar margin; **lip** oblong-subpandurate, 6.5-7 mm long, 3 mm wide, white, dotted with purple, the apex smooth, obtuse, the disc with a pair of low, oblique folds near the middle, the base truncate, hinged beneath; **column** white, marked with purple along the margin, semiterete, 6 mm long, the stout foot 2 mm long with a short, incurved extension.

PERU: **Amazonas**: without collection data, purchased and cultivated by W. E. White 739, cultivated 21 Nov. 1976, *C. Luer 1608A* (Holotype: SEL); Bongará: along Río Imaza between Olmos and Jumbilla, alt. 1500 m, 10 July 1967, *D. Bennett 1958* (SEL); between Pomacochas and Chachapoyas, alt. 2000 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle & J. Meza K-3f* (K, M, SEL, USM, W, Herb. H. Königer); same collection, cultivated in Munich, Germany, by W. Königer, 22 Sept. 1981, *C. Luer 6513* (SEL). ECUADOR: **Morona-Santiago**: Río Chumpias near Bomboiza, alt. 1600-1800 m, Oct. 1980, collected by M. Portilla, cultivated in Cuenca by A. Andreetta, 26 Feb. 1982, *C. Luer 7022* (SEL). **Zamora-Chinchipe**: epiphytic in forest between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13587* (MO).

This species occurs locally and sometimes abundantly in damp forests at moderate altitudes in southeastern Ecuador and northern Peru. The thickly coriaceous leaves, among the larger of the section, are about twice surpassed by the long peduncle. The unique flowers are borne successively in a congested raceme over a long period of time. The reddish purple sepals are rigidly fleshy and connate into an obliquely subquadrate, laterally compressed synsepal with a deep secondary mentum. The margins of the lateral sepals are contiguous above the approximate bases of the tails. Contrary to the other species, the dorsal sepal is distinctly larger than the synsepal. The petals are simply oblong and callous along the labellar half. The lip is oblong with marginal folds near the middle.

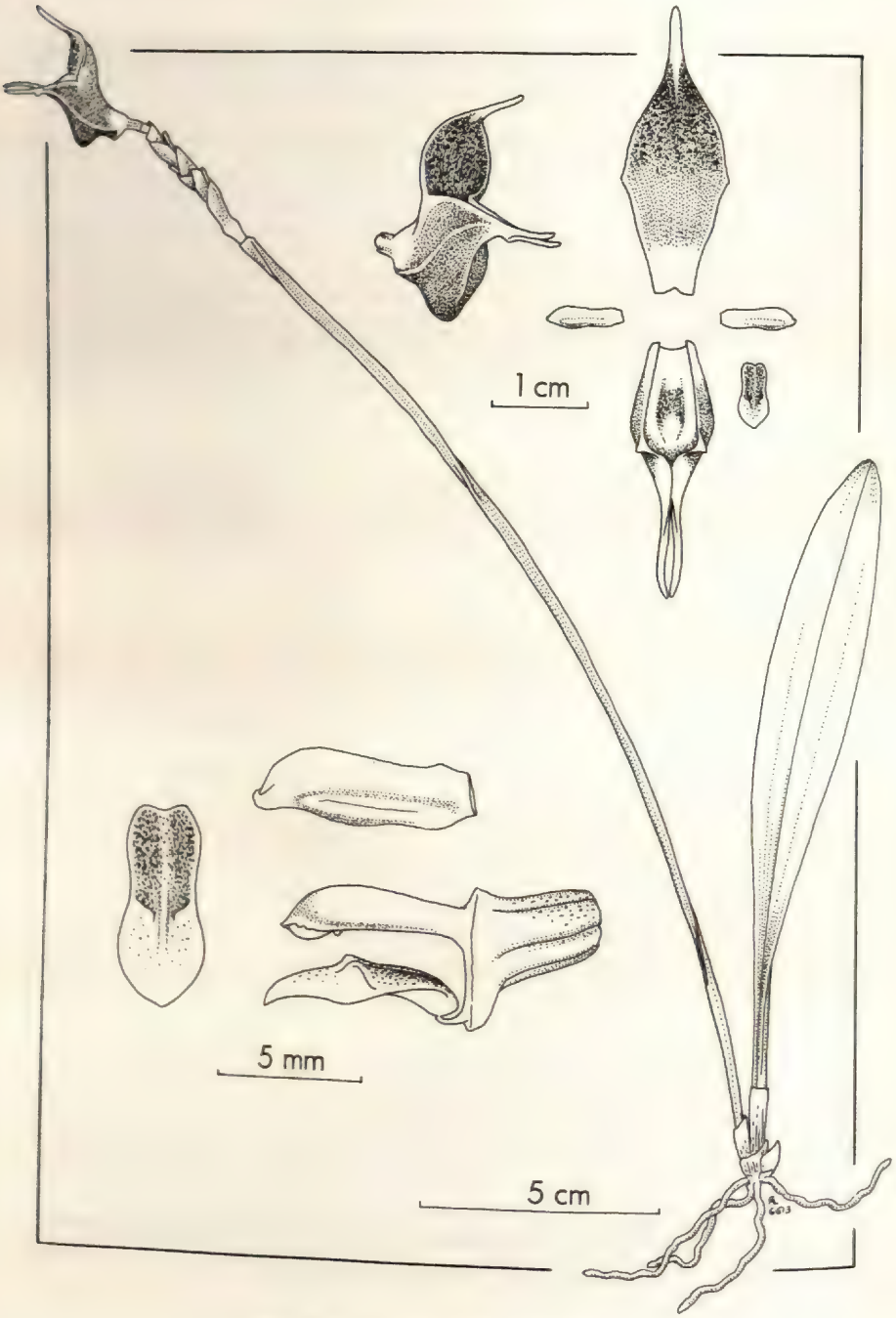



Plate 111. Masdevallia whiteana

**Masdevallia xylina** Rchb.f., Bot. Zeitung (Berlin) 31: 390, 1873.

Ety.: From the Greek *xylinos*, "woody," referring to the stout, thick peduncle.

**Plant** large, presumably epiphytic, caespitose; roots absent from the type-specimen. Ramicaul erect, stout, cut at 2 cm long on the type-specimen. **Leaf** erect, coriaceous, 22 cm long including an indistinct petiole ca. 6 cm long, the blade narrowly elliptical, subacute, 2 cm wide in the dried state, gradually narrowed below into the petiole. **Inflorescence** a succession of solitary flowers borne in a congested raceme by a thick, stout, erect, triquetrous peduncle 14 cm long, from the base of the ramicaul; floral bracts tubular, imbricating, 2 cm long; pedicels 2 cm long; ovary triquetrous, 5 mm long; **sepals** fleshy, color not stated, the dorsal sepal obovate, 12 mm long, 6.5 mm wide, connate to the lateral sepals for 8 mm to form a cylindrical, sepaline tube, the apex acute, contracted into a thick, erect tail ca. 5 cm long, the lateral sepals ovate, oblique, 16 mm long, connate 11 mm into a lamina 19 mm broad, with the apices obtuse, contracted into thickened tails ca. 5 cm long; **petals** oblong, 6 mm long, 1.75 mm wide, the apex subacute, oblique, the labellar margin with a narrow, longitudinal carina; **lip** oblong-subpandurate, 6 mm long, 2 mm wide, the apex obtuse, thickened with a prominent, thick, subpyramidal callus beneath, minutely subverrucose, the disc with a pair of marginal folds from obtuse angles near the middle, the base cordate, hinged beneath; **column** semiterete, 5 mm long, the foot 3 mm long including an incurved extension.

COLOMBIA: **Magdalena?**: presumably Sierra Nevada de Santa Marta, *B. Roezl 717* (Holotype: W); C. Luer illustr. 16980.

This species has not been seen since the original collection by Roezl about 1870. Simply "Sierra Nevada" is given as the locality. Although Sierra Nevada most commonly has been applied to the Sierra Nevada of Santa Marta, other localities, such as Tolima, and another in Peru have also been called Sierra Nevada.

*Masdevallia xylina* was compared to *M. buccinator* by Reichenbach, but it is more similar to a few-flowered *M. sceptrum*. The triquetrous peduncle is stout and shorter than the large, narrow leaf. The lowermost portions of the plant are not included on the type-specimen. One flower from the packet on the type-sheet was hydrated in ammonia with excellent reconstitution on the flower. The perfectly preserved lip is quite different from the sketch by Reichenbach on the type-sheet. Instead of a tall, compressed basal half (probably an artifact from poor rehydration), the lip is subpandurate similar to many others in the section. However, a thick, subpyramidal callus protrudes downward from the thick, obtuse apex.

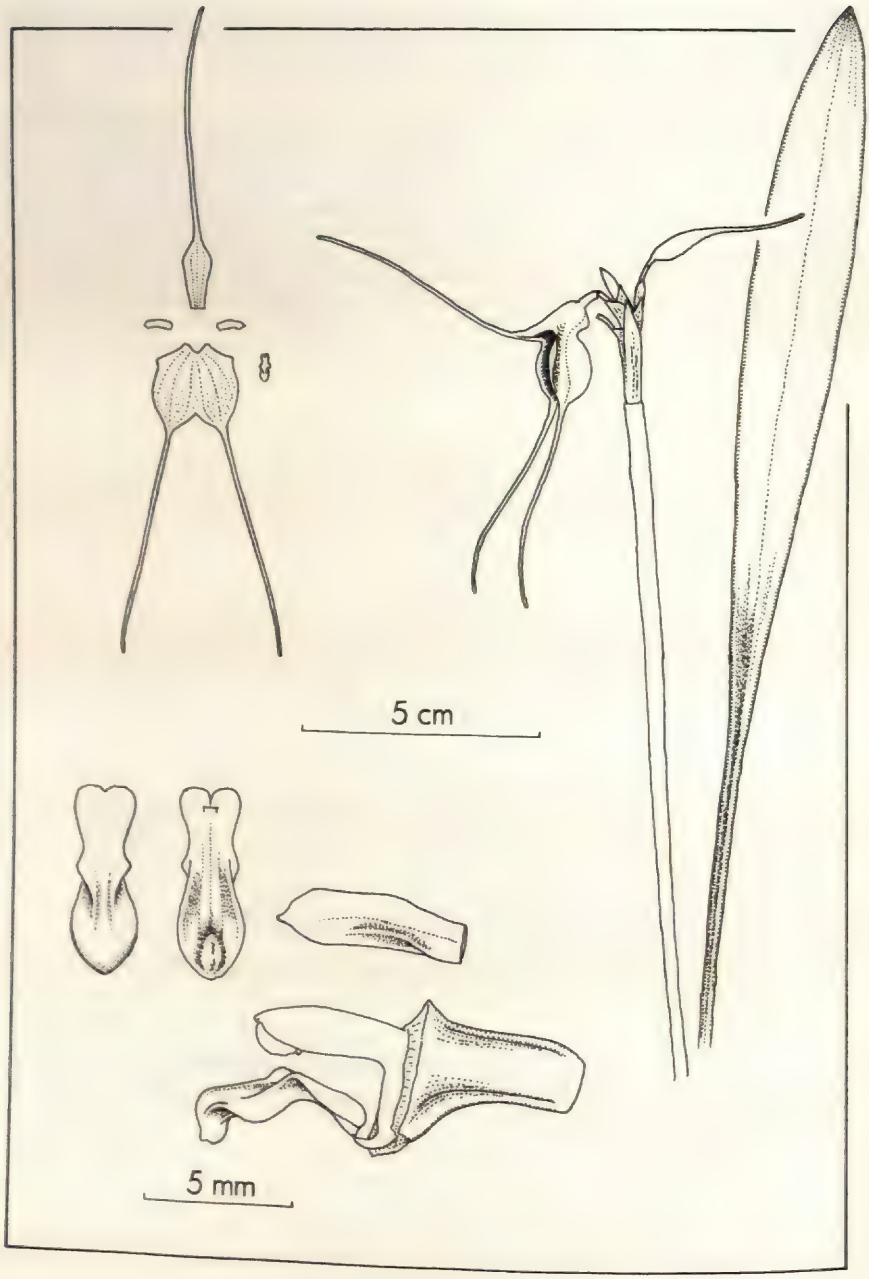



Plate 112. Masdevallia xylina

**Masdevallia zumbae** Luer, Lindleyana 8: 61, 1993.

Ety.: Named for the community of Zumba above which this species was discovered.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2.5-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 12-17 cm long including the petiole 3-5 cm long, the blade elliptical, subacute, 2-2.5 cm wide, gradually narrowed below into the channeled petiole. **Inflorescence** a single flower, produced successively in a congested raceme 2-3 cm long, borne by a stout, erect, triquetrous peduncle 25-28 cm long, with a bract at the base, from the base of a ramicaul; floral bracts whitish, tubular, imbricating, 10 mm long, concealing the pedicels; pedicels 5 mm long; ovary 6-7 mm long; **sepals** glabrous externally, cellular-papillose within, the dorsal sepal yellow-orange, obovate, 38 mm long including the tail 15-18 mm long, 8 mm wide, connate to the lateral sepals for 10 mm to form a sepaline tube, the triangular apex gradually narrowed into the tail, the lateral sepals dark red-purple, connate 28 mm into an ovate, bifid lamina, 35 mm long including 5 mm long tails, 16 mm wide, with a prominent chin formed with the column-foot, the apices acute, contracted into narrow tails; **petals** yellowish white, oblong, 8 mm long, 2-2.5 mm wide, the apex subtruncate, minutely retuse and apiculate, with a longitudinal wing or carina above the labellar margin ending in an erect, more or less twisted lamella above the base; **lip** diffusely suffused and marked with purple, oblong, thick, 8 mm long, 4 mm wide, with wing-like marginal folds above the middle, the epichile obovate, obtuse, subverrucose, tricallous, the hypochile oblong, slightly concave, the base subtruncate, hinged beneath; **column** white, semiterete, 6 mm long, the foot 4 mm long with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in forest above Zumba, alt. 1800 m, 14 July 1989, cultivated at Hasselt, Belgium, Nov. 1991, *P. Cloes s.n.* (Holotype: MO), C. Luer illustr. 15528.

This species is most similar to the rather frequent and widely distributed *M. vargasii*. The flowers of the two species are superficially similar with a cylindrical sepaline tube with a broad protruding lamina of the synsepal and short tails. From *M. vargasii*, *M. zumbae* is distinguished by the sharp, erect carina of the petals, and the proportionately smaller, oblong, bialate lip. *Masdevallia zumbae* is also similar to *M. kuhniorum* Luer, but distinguished by the much longer peduncle as well as the narrow carina of the petals.

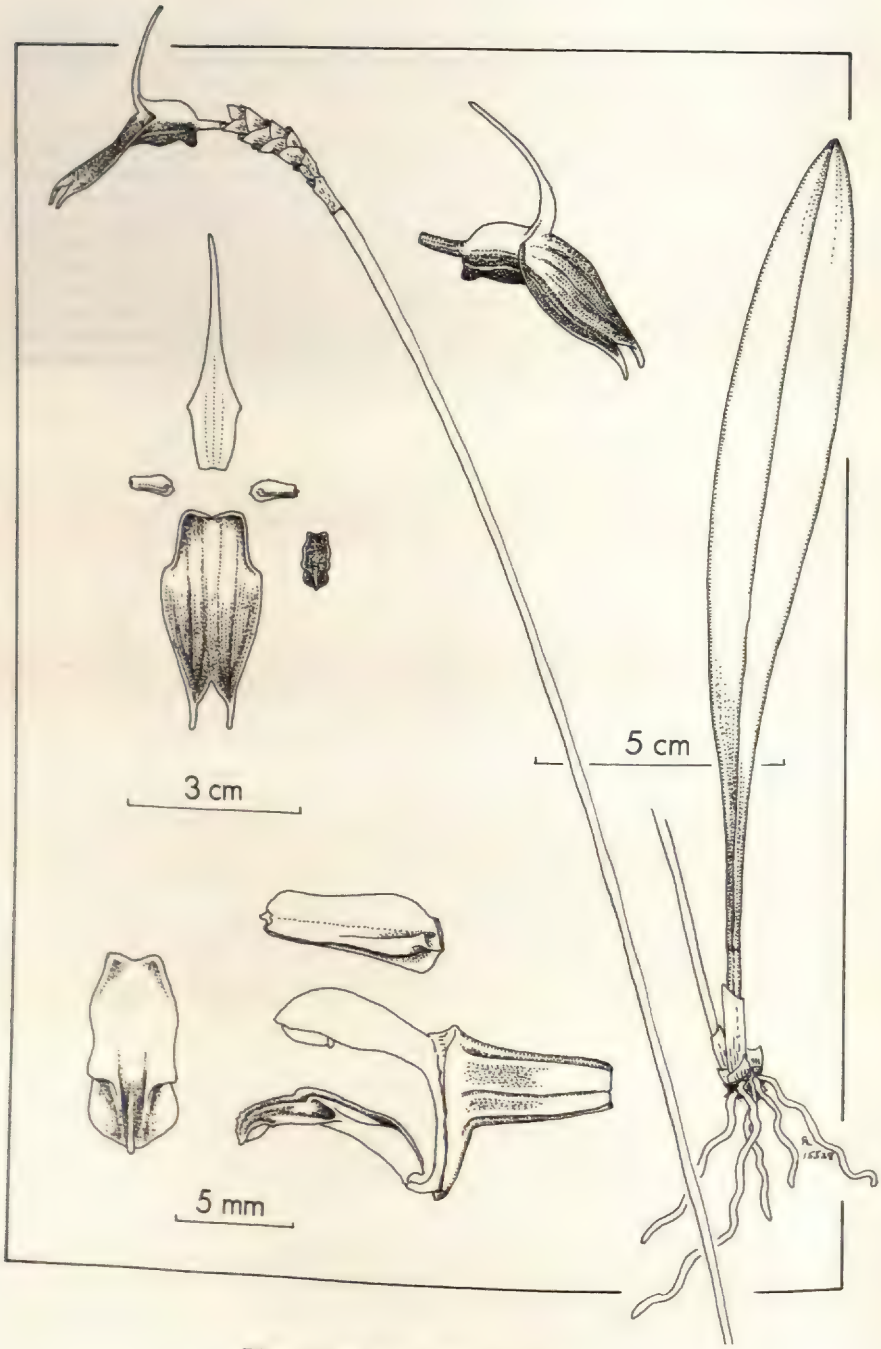



Plate 113. Masdevallia zumbae

## POLYANTHA SECTION POLYANTHAE

**Masdevallia** subgenus **Polyantha** section **Polyanthae** Rchb.f., Gard. Chron. n.s., 1: 372, 1874.

Bas.: *Masdevallia* sect. *Polyanthae* Rchb.f., Gard. Chron. n.s., 1: 372, 1874.
Type: *Masdevallia schlimii* Linden ex Lindl. (Syn.: *M. polyantha* Lindl.).
Ety.: From the Greek *polyanthos*, "many-flowered," referring to the inflorescence.

Syn.: Subsection *Alaticaules* (Kraenzl.) Luer, Monogr. Syst. Bot. 16: 43, 1986.

Reichenbach indicated *Polyanthae* as the "section" to which he would assign Lindley's *Masdevallia polyantha* in 1874. Lindley had described simultaneously *M. polyantha* and *M. schlimii* in 1846 from collections by Jean Linden and his nephew Louis Schlim, respectively. The two taxa are now considered conspecific. The latter name came into usage because it appeared on the preceding page. As a synonym of *M. schlimii*, Kränzlin included *M. polyantha* in section *Alaticaules* subsection *Longiscapae* in his monograph of the genus in 1925.

As presently conceived, section *Polyanthae* is characterized by a simultaneously or successively flowered inflorescence borne by a peduncle round in cross section. Some successively flowered species produce the flowers in rapid succession, so that the next flower may open while the previous flower is still present. In some species, the duration of time between the appearance of flowers is prolonged, sometimes without a second flower developing.

Similar to the flowers of section *Alaticaules*, the sepals are more or less rigidly fleshy, usually with tails, and variously connate into a cup or tube. The petals are callous on the labellar half, rarely forming a protruding process. The lip is thick and divided by marginal folds near the middle into an epichile and a hypochile. These criteria bring together species that are not as closely related as are those of section *Alaticaules*.

Similar to section *Alaticaules*, section *Polyanthae* is divided into two subsections based upon the raceme, whether it be simultaneously flowered or successively flowered.

**Polyanthae** subsect. **Polyanthae** (Rchb.f.) Veitch, Man. Orchid. Pl. 5: 18, 1889.
Type: *Masdevallia polyantha* Linden ex Lindl. ( = *Masdevallia schlimii* Linden ex Lindl.)

This subsection is characterized by a simultaneously flowered inflorescence borne by a terete peduncle. The two species included in this subsection are closely related to subsection *Alaticaules*, differing from the latter only by the peduncle that is not triquetrous. They are not as closely related to those species with a successively flowered raceme in subsection *Successiviflorae*.

**Polyanthae** subsect. **Successiviflorae** Luer, subsect. nov.
Type: *Masdevallia lata* Rchb.f.
Ety.: From the Latin *successiviflorus*, "successively flowered," referring to the inflorescence.

Pedunculus teres et racemus successiviflorus.

This subsection is characterized by a lip divided into an epichile and a hypochile by marginal folds, and a successively flowered, or occasionally a single-flowered inflorescence borne by a terete peduncle. In a few species a subsequent flower may not follow.

A few species treated in subsection *Alaticaules* occasionally produce partially terete peduncles, but they are usually not completely terete. They will be included in the key to the species of both subsections.

## BINOMIALS IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *POLYANTHAE*

*M. borucana* P.H. Allen = **M. lata** Rchb.f.
*M. chloracra* Rchb.f. = **M. striatella**
**M. cosmia** Königer ..... Plate 114.
**M. cupularis** Rchb.f. ..... Plate 115.
**M. curtipes** Barb.Rodr. ..... Plates 116, 117.
*M. demissa* var. *superflua* Kraenzl. = **M. striatella**
**M. discoidea** Luer & Würstle ..... Plate 118.
**M. eumeces** Luer ..... Plate 119.
*M. foeda* Luer & Vásquez = **M. menatoi**
**M. jarae** Luer ..... Plate 120.
**M. lata** Rchb.f. ..... Plate 121.
**M. maduroi** Luer ..... Plate 122.
**M. mayaycu** Luer & Hirtz ..... Plate 123.
**M. menatoi** Luer & Vásquez ..... Plates 124, 125.
*M. odontochila* Schltr. = **M. cupularis.**
**M. oreas** Luer & Vásquez ..... Plate 126.
*M. polyantha* Lindl. = **M. schlimii**
**M. pyxis** Luer ..... Plate 127.
*M. reflexa* Schltr. = **M. cupularis**
**M. schlimii** Linden ex Lindl. ..... Plate 128.
*M. schlimii* var. *polyantha* (Lindl.) Woolw. = **M. schlimii**
**M. striatella** Rchb.f. ..... Plates 129, 130.
*M. superflua* Kraenzl. = **M. striatella**
**M. thienii** Dodson ..... Plate 131.
**M. wuerstlei** Luer ..... Plate 132.

## KEY TO THE SUBSECTIONS AND SPECIES OF SECTION *POLYANTHAE*

Species of subsection *Alaticaules* included in the key:
*M. garciae, M. infracta, M. richardsoniana*, and *M. sprucei.*

1 Inflorescence simultaneously flowered ..... 2
1' Inflorescence not simultaneously flowered ..... 6

*Polyanthae* subsect. *Polyanthae*

2 Pedicels twisted ..... *M. wuerstlei*
2' Pedicels not twisted ..... 3

3 Lateral sepals with tails shorter than the blades ..... 4
3' Lateral sepals with tails much longer than the blades ..... 5

4 Dorsal sepal yellow, lateral sepals purple, tails less than 1 mm thick ..... *M. menatoi*
4' Sepals yellow with purple stripes, tails at least 1 mm thick ..... *M. striatella*

5 Raceme lax with 3-6 flowers ..... *M. schlimii*
5' Raceme congested with 1-2 flowers ..... *M. oreas*

*Polyanthae* subsect. *Successiviflorae*

6 Peduncle horizontal or creeping; lip with epichile deeply fringed.....*M. cupularis*
6' Peduncle ascending to erect .....7

7 Peduncle shorter than the leaf.....8
7' Peduncle nearly as long as or longer than the leaf.....15

8 Lateral sepals compressed .....9
8' Lateral sepals not compressed.....10

9 Lateral sepals compressed, connate to near the apex.....*M. curtipes*
9' Flowers markedly compressed, lateral sepals free 1 cm behind the apices.....
.....*M. discoidea*

10 Lateral sepals acuminate into tails longer than the tube.....*M. eumeces*
10' Lateral sepals contracted into tails shorter than the blade.....11

11 Synsepal deeply connate and concave, forming a box-like flower.....*M. pyxis*
11' Synsepal not deeply connate and concave .....12

12 Synsepal deeply connate and broadly expanded beyond the tube.....*M. jarae*
12' Synsepal not deeply connate and broadly expanded beyond the tube.....13

13 Dorsal sepal yellow, lateral sepals purple, tails less than 1 mm thick....*M. cosmia*
13' Sepals yellow with purple stripes, tails at least 1 mm thick.....14

14 Lip with the base shallowly cordate with concave lobes.....*M. striatella*
14' Lip with the base deeply incised, without concave lobes.....*M. garciae*

15 Peduncle stout, strict, erect, flowering in rapid succession.....16
15' Peduncle slender, ascending to erect, flowering in slow succession.....18

16 Dorsal sepal connate above the middle into a broad, bell-shaped cup.....
.....*M. infracta*
16' Dorsal sepal connate to near the middle into a proportionately short, cylindrical
tube.....17

17 Lateral sepals with tails shorter than the blades.....*M. menatoi*
17' Lateral sepals with tails much longer than the blades .....*M. oreas*

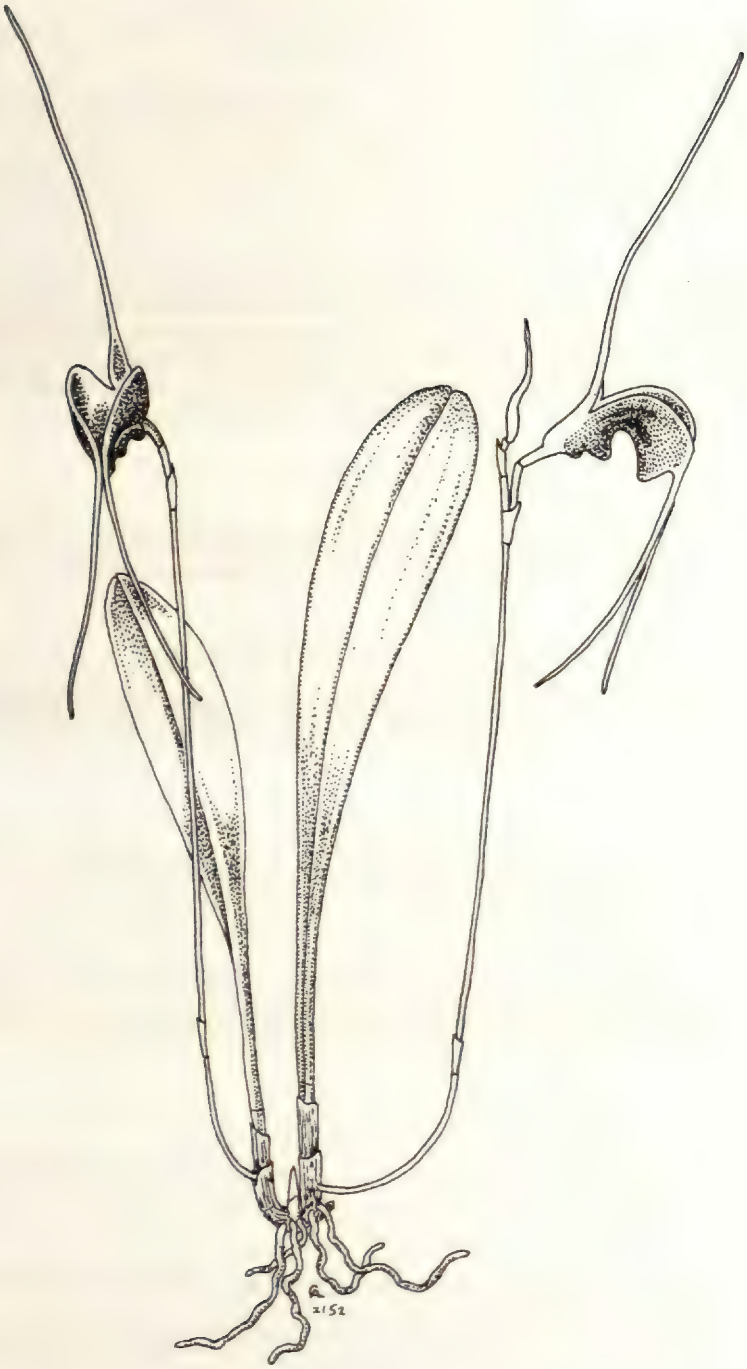
18 Peduncle ascending, more than 8 cm long.....19
18' Peduncle erect, less than 6 cm long.....22

19 Lateral sepals broadly rounded beyond the tube, with the apices contiguous.....
.....*M. lata*
19' Lateral sepals not with the apices contiguous.....20

20 Lip hinged near the middle of the undersurface.....*M. maduroi*
20' Lip hinged near the base .....21

21 Petals with a finger-like, retrorse process.....*M. thienii*
21' Petals without a finger-like, retrorse process.....*M. mayaycu*

22 Lateral sepals with tails less than 1 cm long.....*M. sprucei*
22' Lateral sepals with tails more than 2 cm long.....*M. richardsoniana*


2152

**Masdevallia cosmia** Königer & Sijm, Arcula 8: 223, 1999.

Ety.: From the Greek *kosmos*, "modest," referring to the small flower and short peduncle.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 11-14 cm long including the petiole 1-3 cm long, the blade narrowly elliptical, subacute, 2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a single flower followed by a second, borne by an erect, terete peduncle, 2-2.5 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, oblique, 8 mm long; pedicel 10 mm long; ovary 5 mm long; **sepals** fleshy, microscopically verrucose within, yellowish, diffusely spotted with purple-brown, the dorsal sepal obovate, 11 mm long, 6 mm wide, connate to the lateral sepals for 6 mm to form a broad, cylindrical tube, the free portion broadly triangular with the subacute apex contracted into an erect, slender tail 9 mm long, the lateral sepals oblong-obovate, 15 mm long, connate 10 mm into a lamina 13 mm wide, the free portions rounded, 6 mm wide, abruptly contracted into recurved tails 4-5 mm long; **petals** white, oblong, 5.5 mm long, 2 mm wide, the apex obliquely bilobed, the labellar half with a low, longitudinal callus, thickened near the base; **lip** diffusely dotted with purple-brown, oblong-pandurate, 6.5 mm long, 2 mm wide, with erect, obtusely angled marginal folds above the middle, the epichile ovate, obtuse, minutely verrucose and denticulate, with a verrucose, midline callus, the hypochile oblong, shallowly concave, with suberect margins, the base broadly retuse, hinged on the end; **column** white with purple margins, semiterete, 5 mm long, the foot 2.5 mm long with a short, incurved extension.

PERU: Without collection data, flowered in cultivation by M. Arias in Lima, Peru, and later by A.P. Sijm in Venhuizen, the Netherlands, without dates, *W. Königer WK-89* (Holotype: M); same collection, flowered Dec. 1999 by *A.P. Sijm s.n.* (MO), C. Luer illustr. 19297.

This species is known from Peru without collection data. It is very similar to the Bolivian *M. menatoi*, and could be considered to be a variation with an exceptionately short pedumcle. Another variation (*M. foeda*) with a peduncle shorter than that of *M. menatoi* is included in the synonymy of *M. menatoi*.

*Masdevallia cosmia* is characterized by a short, terete peduncle with a proportionately small flower. A second flower occurs after a long interval, while a subsequent flower of *M. menatoi* appears as the first is waning. The lateral sepals of both species are connate well above the middle with rounded free portions that are contracted into tails shorter than the blades. The petals and lips of the two taxa are basically similar.

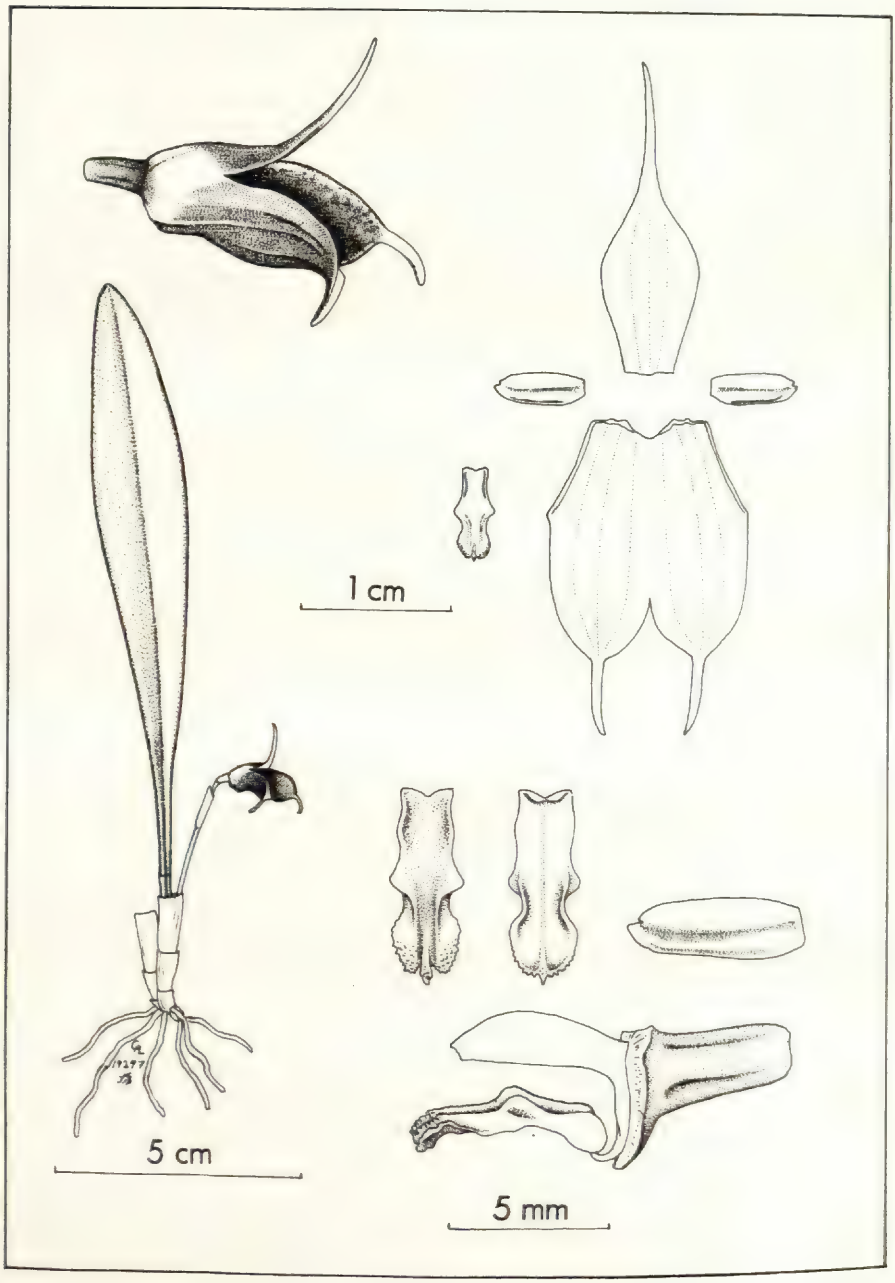



Plate 114. Masdevallia cosmia

**Masdevallia cupularis** Rchb.f., Beitr. Orch. Centr.-Amer. 93, 1866.

Ety.: From the Latin *cupularis*, "like a little cup," referring to the sepaline tube.

Syn.: *Masdevallia odontochila* Schltr., Repert. Spec. Nov. Regni Veg. 9: 29, 1910.
Ety.: From the Greek *odontocheilos*, "toothed lip," referring to the denticulate labellum.

Syn.: *Masdevallia reflexa* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 276, 1923.
Ety.: From the Latin *reflexus*, "reflexed," referring to the free apices of the sepals.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-12 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect to suberect, coriaceous, 5-10 cm long including a petiole 1-2.5 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 1.5-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a single flower, sometimes followed by a second flower, borne by a slender, suberect to horizontal peduncle, 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-12 mm long; pedicel 8-12 mm long; ovary 8-9 mm long; **sepals** yellowish, diffusely flecked and spotted with purple-brown, suffused with purple-brown toward the apices, glabrous, subcarinate, the dorsal sepal obovate, 17 mm long, 10 mm wide, connate to the lateral sepals for 11 mm into a broad sepaline tube, the free portion triangular, subacute, contracted into a slender, suberect, greenish tail 1.5 cm long, the lateral sepals obovate, oblique, 18 mm long, 9 mm wide, connate 6 mm, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** white, flecked and suffused with red-purple, elliptical-oblong, 7 mm long, 3.25 mm wide, both halves longitudinally thickened, the labellar half with an indistinct, low, thick callus, the apex obtuse with an obscure, thick apiculum; **lip** cream, diffusely flecked with red-purple, oblong-subpandurate, 10 mm long, 5 mm wide, with marginal folds above the middle, the apex obtuse, papillose-verrucose, with fimbriate margins, the disc shallowly sulcate, flat below the middle, the base subcordate, hinged beneath; **column** green, suffused with red, semiterete, 7 mm long, the foot 5 mm long with an incurved extension.

COSTA RICA: **Heredia**: Desengaño, 5 Aug. 1857, *H. Wendland s.n.* (Holotype: W); Volcán Barba, alt. 7,000 ft., *A.R. Endres 662* (W); Poasito, Vara Blanca, alt. 2200 m, 11 Mar. 1934, *C.H. Lankester s.n.* (AMES); Monte de la Cruz, alt. 1700 m, 30 Oct. 1940, *Inge León 265* (CR); Monte de la Cruz, alt. 1900-2000 m, collected by R. Escobar, 28 July 1983, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13240* (MO). **Alajuela**: Río Poasito, Fraijanes, alt. 1700 m, 29 July 1978, *C. Todzia 388* (CR); Poasito, alt. 2000 m, 12 Sept. 1979, *C. Todzia 702* (CR). **Cartago**: Tablazo, alt. 1800 m, 27 July 1927, *M. Valerio 10* (AMES); Rancho Flores, alt. 2043 m, 6 Feb. 1890, *H. Pittier 2011* (holotypes of both *M. odontochila* and *M. reflexa*: CR).

This infrequent species was first collected by Hermann Wendland near the pass northeast of San José where it is still occasionally found. *Masdevallia odontochila* is a synonym of *M. cupularis*, not *M. rolfeana* as declared by Kränzlin in his monograph of the genus. Both *M. odontochila* and *M. reflexa* are based on the same collection by Pittier.

*Masdevallia cupularis* is characterized by the relatively small habit, and a more or less horizontal peduncle that occasionally produces a second flower. The successively flowered inflorescence was not observed in any of the three original descriptions cited above. The sepaline tube is broad, diffusely marked with purple-brown, and with slender tails about as long as the blades. The petals are callous without a process. The lip is divided by marginal folds into a fimbriate epichile and an oblong hypochile.

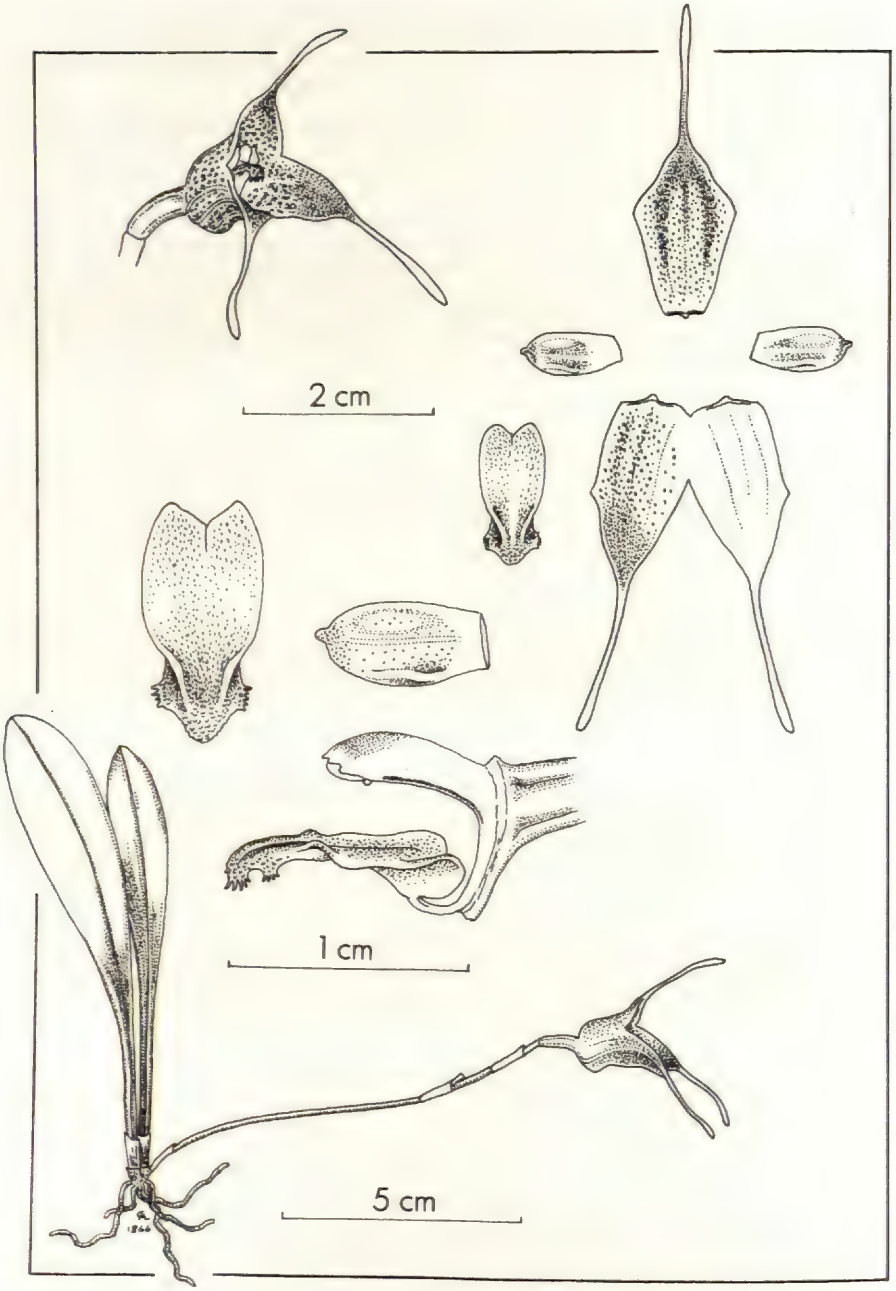



Plate 115. Masdevallia cupularis

## **Masdevallia curtipes** Barb.Rodr., Gen. Spec. Orch. Nov. 2: 95, 1882.

Ety.: From the Latin *curtipes*, "a short foot," referring to the short peduncle.

**Plant** medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 5-10 cm long including the petiole 1-2 cm long, 1.5-2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a succession of single flowers, borne in a congested raceme by a slender, erect, terete peduncle, 1-3 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 20 mm long; ovary 5-6 mm long; **sepals** dull white, suffused with purple above the middle, glabrous externally, cellular-glandular within, the dorsal sepal oblong-obovate, 13 mm long, 7 mm wide, connate to the lateral sepals for 11 mm to form a campanulate, slightly laterally compressed sepaline tube, the obtuse apex contracted into a slender, erect tail 2-2.5 cm long, the lateral sepals broadly ovate, oblique, obtuse, 10 mm long, connate to each other for 13 mm into a lamina 17 mm wide expanded, forming a deep mentum with the column-foot below a central constriction, the obtuse apices in apposition, contracted into slender tails 1.5 cm long; **petals** white, marked with purple, oblong, 6.5 mm long, 1.5 mm wide, with a low, longitudinal carina along the labellar margin, the more or less truncate apex apiculate; **lip** white, dotted with purple, oblong-subpandurate, 6 mm long, 2.5 mm wide, with acute marginal folds slightly above the middle, the epichile ovate, subverrucose, rounded to subtruncate, revolute, the hypochile oblong, the disc shallowly channeled, the base subcordate, hinged beneath; **column** white, semiterete, 4.5 mm long, the foot 3 mm long, with an incurved extension.

BRAZIL: **Rio de Janeiro**: virgin, humid forest near Rodeio, *Barb.Rodr. s.n.* (Holotype: Icon. Orch. Brésil 2: t. 110); Repressa Camorium, Jacaripaquá, *O. Voll s.n.* (RB). **Espírito Santo**: Muniz Freire, 5 Dec. 1984, *G. Hatschbach & J.M. Silva 48637* (Curitiba). **Minas Gerais**: Jan. 1909, *Baron von Fürstenberg s.n.* (HBG); near Caldas, *Regnell III-1131* (W). Without collection data, imported from Guillany, cultivated by W. Königer, 7 Aug. 1984, *C. Luer 10396* (MO).

*Masdevallia curtipes*, segregated from *M. infracta* by Barbosa Rodrigues in 1882, is closely allied to the numerous forms of the frequent *M. infracta* treated in section *Alaticaules*, and it is often included in the synonymy of the latter. From the latter, it is distinguished by the short peduncle (less than three centimeters long) that is round in cross section, and sometimes bears but a single flower. Except for the slightly smaller size, the flower is basically the same as that of *M. infracta*.

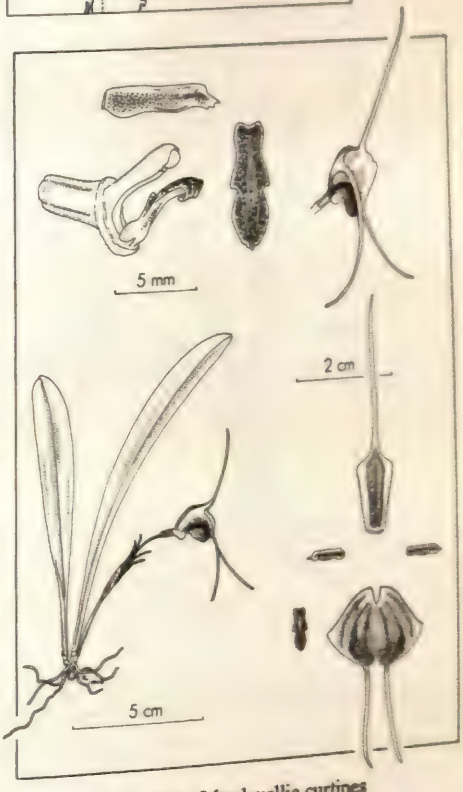



Plate 116. Masdevallia curtipes

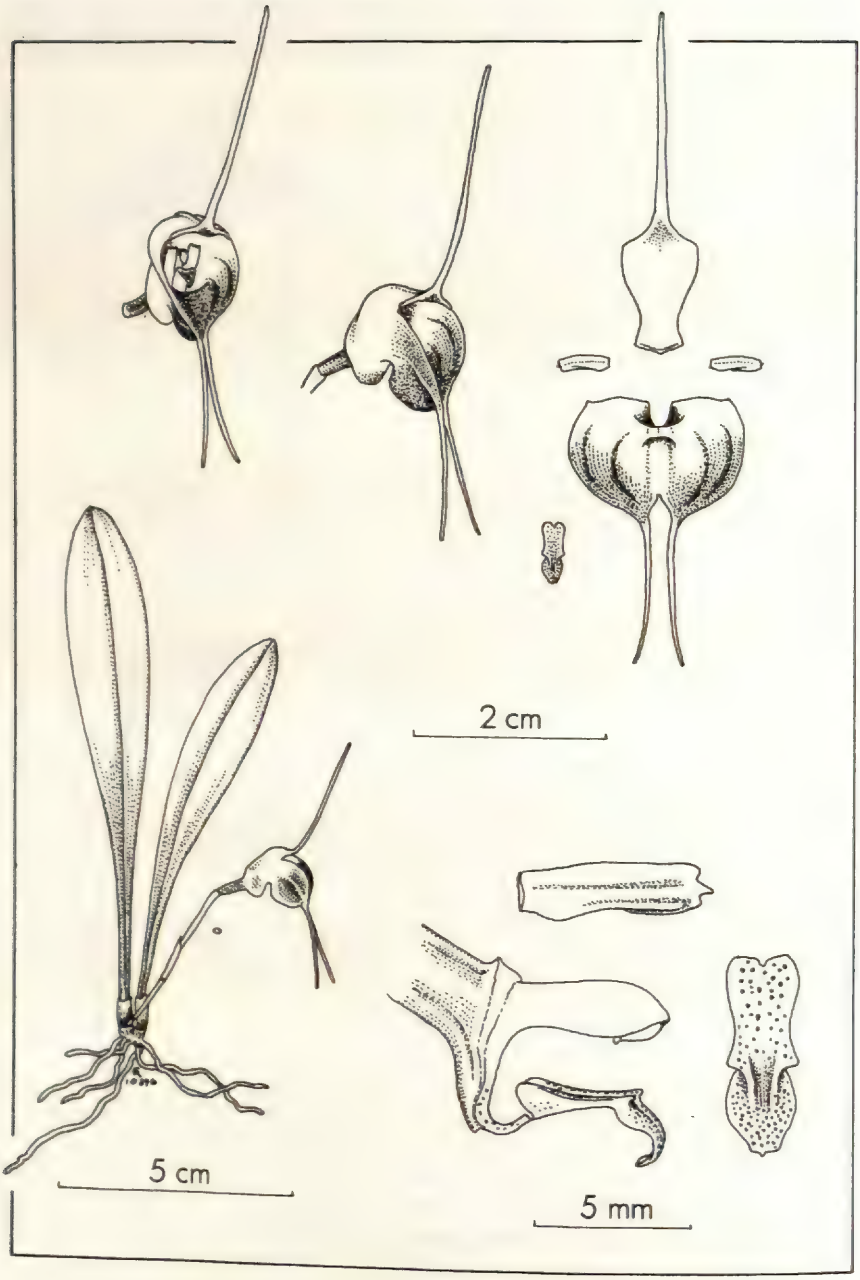



Plate 117. Masdevallia curtipes

**Masdevallia discoidea** Luer & Würstle, Lindleyana 1: 182, 1986.

Ety.: From the Latin *discoideus*, "shaped like a discus," referring to the shape of the flower.

**Plant** medium in size, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, oblong, obtuse, 8-11 cm long including an indistinct petiole 1-1.5 cm long, 2.5-3 cm wide, cuneate below into the shortly petiolate base. **Inflorescence** a congested raceme of successive flowers, borne by a stout peduncle 0.5-1 cm long, with a bract at the base, from low on the ramicaul; floral bracts imbricating, ca. 10 mm long; pedicel ca. 15 mm long; ovary 7-8 mm long; **sepals** dark purple, paler purple to white on the free margins, glabrous, the dorsal sepal oblong, 20 mm long, 9 mm wide, connate to the lateral sepals for 18 mm to form a laterally compressed sepaline tube, the free portion obtuse, contracted into a slender, yellow tail 4 cm long, the lateral sepals more or less orbicular, 23 mm long, 17 mm wide, connate 15 mm to form a deep, longitudinal secondary mentum beyond the constriction above the sharply angled mentum with the column-foot, the free portions rounded, in apposition, abruptly contracted into slender, yellow tails 3 cm long; **petals** dark purple, oblong, 7.5 mm long, 2 mm wide, the truncate apex obliquely apiculate, the labellar margin with a narrow longitudinal callus; **lip** dark purple, oblong-subpandurate, 8 mm long, 1.5-3 mm wide, with acute marginal folds near the middle, the apex dilated, obtuse, revolute, the truncate base hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with an incurved extension.

BRAZIL: without locality, cultivated by B. Würstle in Spielberg, Germany, 22 Sept. 1985, *C. Luer 11404* (Holotype: MO); without locality, cultivated at Orquidário Binot in Petrópolis, 23 Jan. 1997, *C. Luer 12873A* (MO).

This species was imported as *M. curtipes* with other orchids from Brazil by Berthold Würstle in 1985. Although obviously related to *M. curtipes*, a short, terete-stemmed ally of the variable *M. infracta*, this unusual species is easily distinguished by the broad leaves, broader than those seen in *M. infracta* or *M. curtipes*; terete peduncles even shorter than those of *M. curtipes*; and markedly laterally compressed, dark purple flowers. The flowers are larger than those of either *M. infracta* or *M. curtipes* and extremely flat or discoid, less than 8 or 9 mm deep or across from side to side. The petals and lip are dark purple. The marginal folds of the lip are acute and erect, and the apex is revolute.

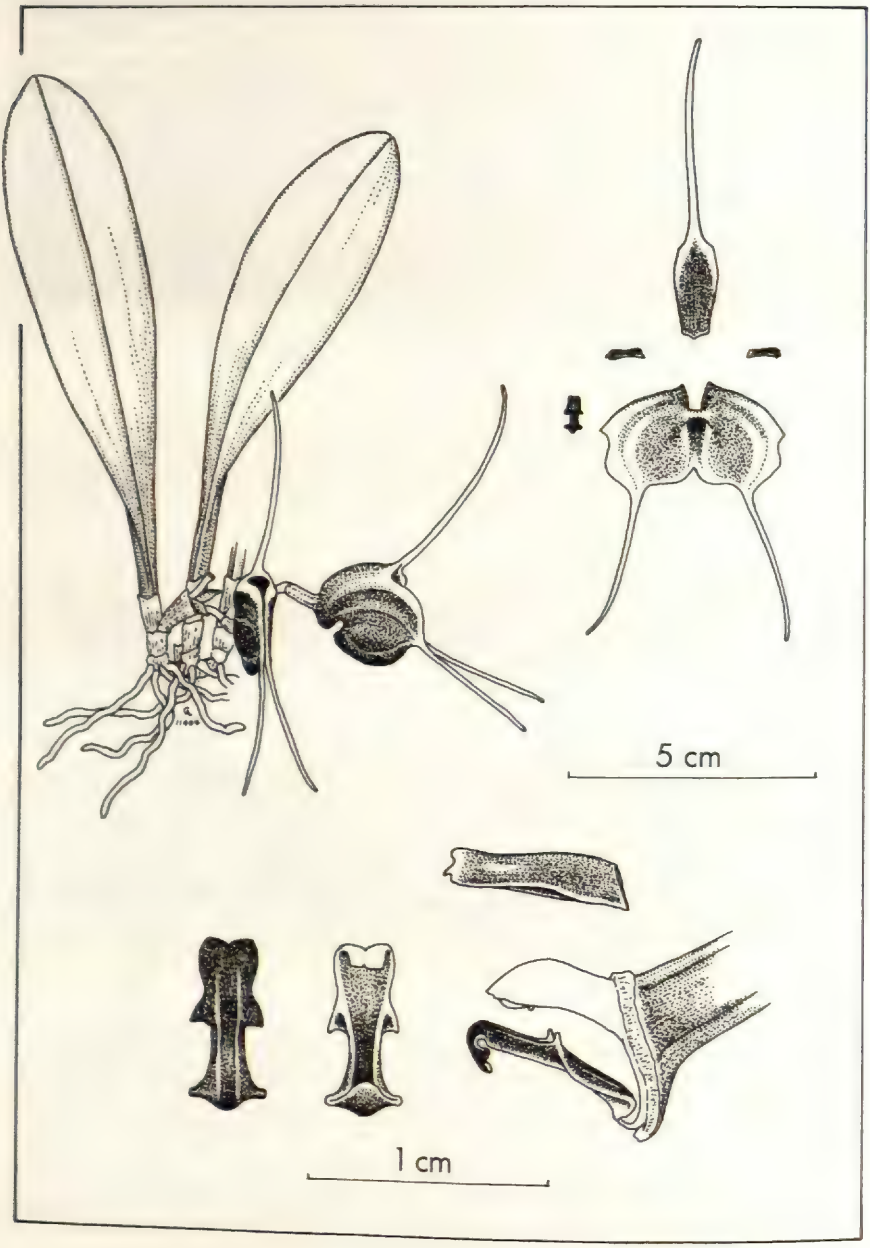



Plate 118. Masdevallia discoidea

**Masdevallia eumeces** Luer, Lindleyana 4: 111, 1989.

Ety.: From the Greek *eumekes*, "of good length," referring to the long, sepaline tails.

**Plant** small, presumably epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 3-5 cm long including an indistinct petiole 0.5-1 cm long, the blade narrowly elliptical, acute, 0.7-0.9 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a stout, erect peduncle 1-1.5 cm long, with a bract above the base, from the base of a ramicaul; floral bract tubular, 8 mm long; pedicel 10 mm long; ovary 7 mm long; **sepals** fleshy, light yellow-green, lightly flecked with brown, minutely short-pubescent within, the dorsal sepal obovate, 45 mm long including the tail, 7 mm wide, connate to the lateral sepals for 7 mm to form a horizontal, cylindrical, sepaline tube, the apex triangular, gradually narrowed into a slender, erect tail 35 mm long, the lateral sepals oblong-ovate, oblique, 43 mm long, including the tail, 7 mm wide, connate 7 mm, the free portions triangular, narrowed into tails similar to that of the dorsal sepal; **petals** white, cartilaginous, oblong-ovate, 6.5 mm long, 1.5-2.5 mm wide, the apex acute, the labellar half with a longitudinal callus ending in a rounded thickening above the base, obtusely angled on both margins above the base; **lip** light brown, oblong, 6.5 mm long, with marginal folds near the middle, the epichile ovate, 2.5 mm wide, shallowly channeled, the apex minutely erose, subacute, subverrucose, the hypochile oblong, 2 mm wide, the base subcordate, hinged beneath; **column** semiterete, 5 mm long, the foot 2 mm long including the incurved extension.

PERU: without collection data, obtained by Walter Teague, cultivated in San Francisco, CA, July 1988, *C. Luer 13769* (Holotype: MO).

*Masdevallia eumeces*, in spite of its long, sepaline tails, is one of the smallest of the species of the section. Apparently it is endemic in Peru. No other collections are known. The leaves are narrow and thickly coriaceous. The flower is borne by a slender, terete peduncle less than half as long as the leaf. Whether or not a second flower develops is unknown. The fleshy, greenish sepals are connate into a short, broad tube beyond which they are gradually narrowed into the long, slender tails. The petals are oblong, with the longitudinal callus swollen at the base, and the apex is acute. The subverrucose epichile is broader than the hypochile.

This species exhibits an exceptional combination of features that place it between *Masdevallia* section *Coriaceae* and this subsection of subgenus *Polyantha*. Were it not for the probability of a successive flower, and the marginal folds of a lip distinctive for the subgenus, it would be classified in the former of subgenus *Masdevallia*.

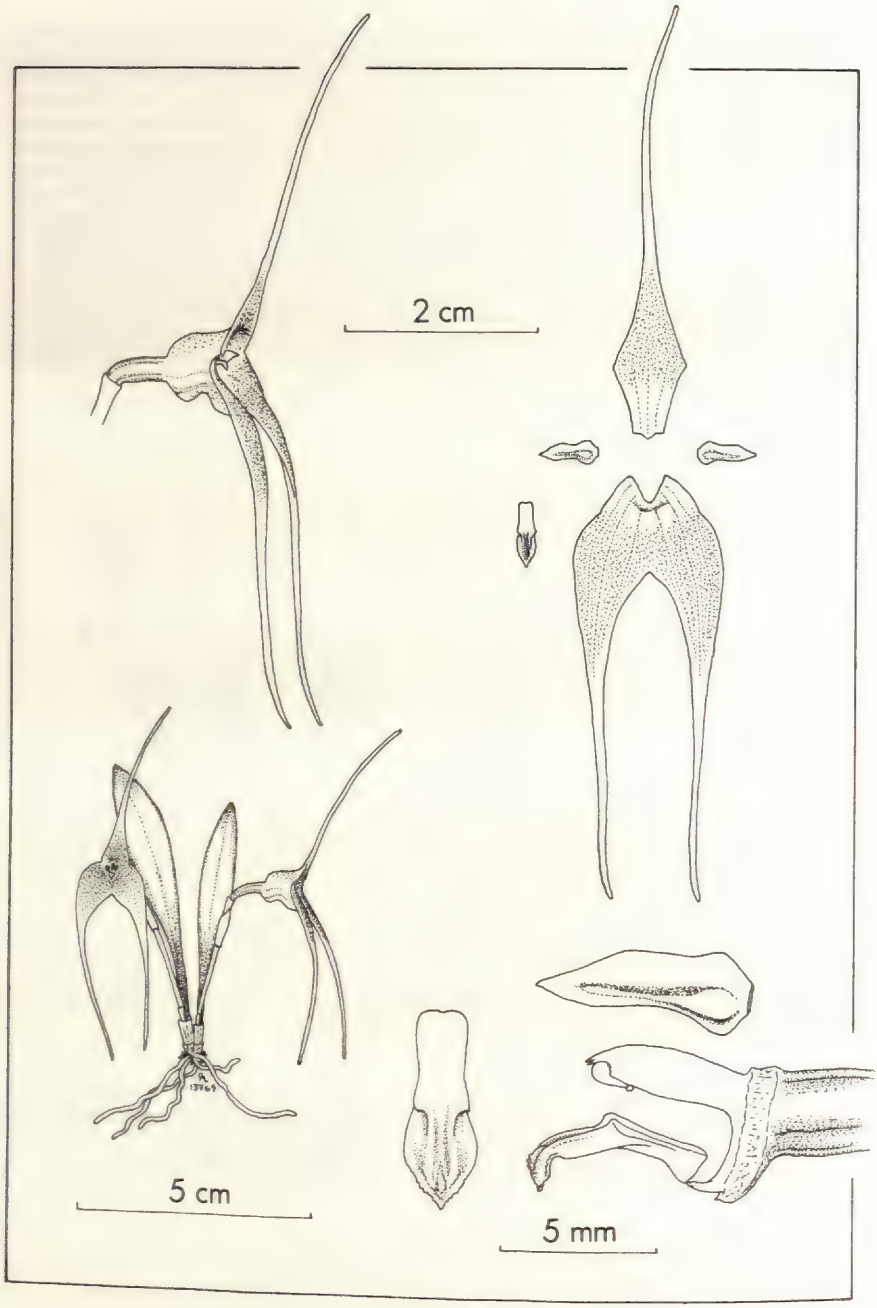



Plate 119. Masdevallia eumeces

**Masdevallia jarae** Luer, Harvard Papers in Botany, 9: 4, 1996.

Ety.: Named in honor of Enrique Jara Piñán who first collected this species.

**Plant** small, presumably epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-7 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 2-3.5 cm long including a 6-8 mm long, the blade elliptical, obtuse, 8-9 mm wide, cuneate below into the petiole. **Inflorescence** a proportionately large flower, followed slowly by another, borne by a slender, suberect to reclining, terete peduncle ca. 7 mm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 9 mm long; ovary 3-4 mm long; **sepals** yellow, the dorsal sepal oblong, 6-7 mm long, 4 mm wide, 3-veined, connate to the lateral sepals for 4 mm into a cylindrical tube, the apex acute, contracted into an erect to reflexed, slender, yellow tail 4 cm long, the lateral sepals suffused with purple basally, cellular-papillose, connate 17-19 mm into a broadly expanded synsepal distal to the tube, 20-22 mm long, 14-16 mm wide, the apices subacute, contracted into slender tails 10-12 mm long; **petals** white, cartilaginous, oblong, thickened longitudinally on the labellar half, ending in a low, rounded callus above the base, 5.5 mm long, 1.5 mm wide, the apex obtuse, obscurely bilobulate; **lip** light rose, diffusely dotted with red-purple, oblong, 5 mm long, 2 mm wide, with marginal folds near the middle, the epichile ovate, acute, microscopically verrucose, the hypochile oblong, the base subtruncate, hinged beneath; **column** white with thin, purple margins, semiterete, 4 mm long, the foot dark purple, 2 mm long including a short, incurved extension.

PERU: **Huánuco**: collected near Tingo Maria by E. Jara P., Oct. 1995, cultivated by J & L Orchids, Easton, CT, 30 Apr. 1996, *C. Luer 17854* (Holotype: MO).

This species is apparently endemic in central Peru. In the discussion accompanying the original description, it was erroneously placed in section *Amaluzae* because of the superficial similarity of the habit and flower, in spite of the lip which was thought to be an exception in the section. However, the divided lip and an oblong petal with a rounded callus at the base certainly indicate subgenus *Polyantha*, and the terete peduncle, section *Polyanthae*.

The habit is caespitose with small, elliptical leaves. The much shorter, terete peduncle bears a proportionately large flower with a long, recurved tail of the dorsal sepal, and a synsepal broadly expanded below beyond the tube with a pair of short, slender tails.

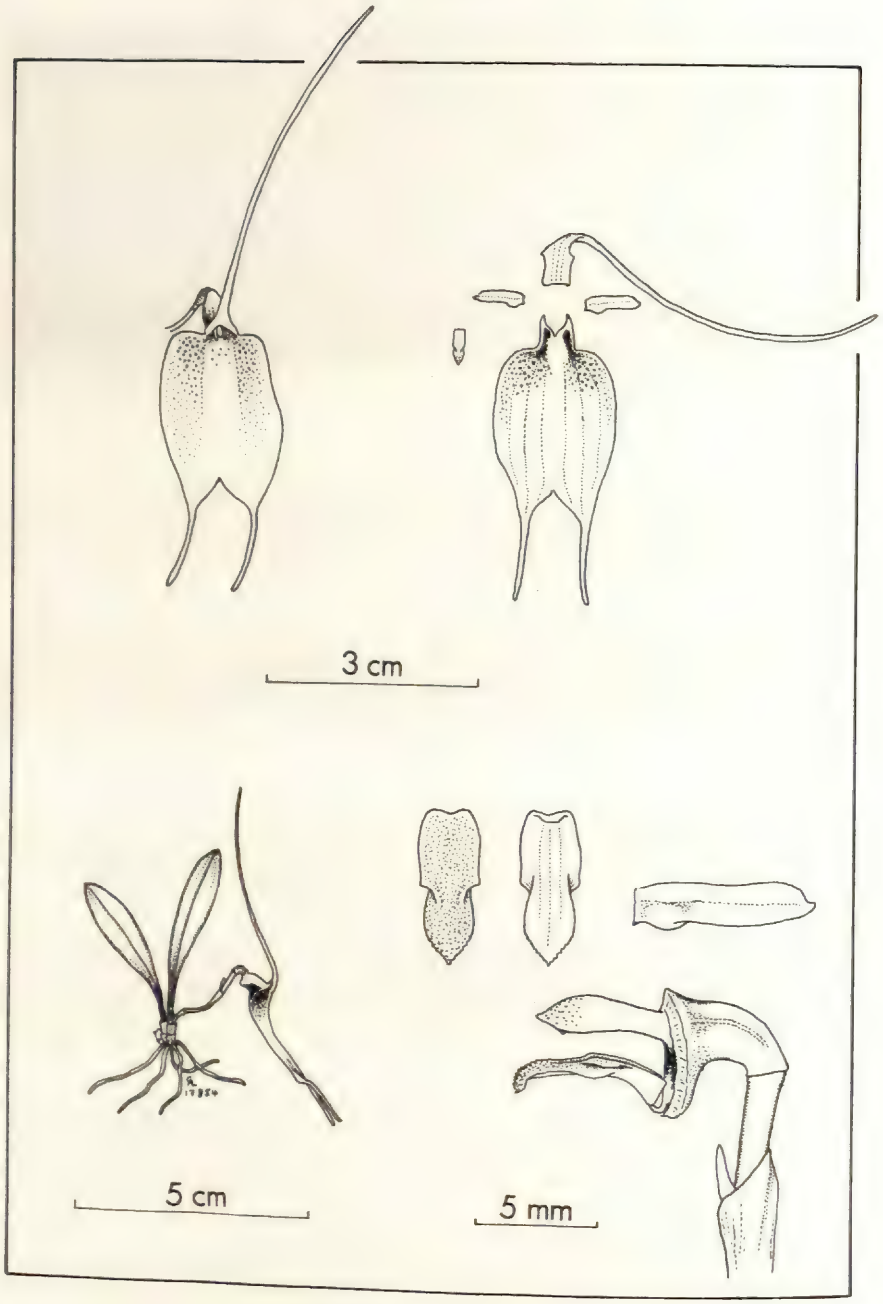



Plate 120. Masdevallia jarae

**Masdevallia lata** Rchb.f., Gard. Chron. n.s., 7: 653, 1877.

Ety.: From the Latin *latus*, "wide," in reference to the broad, lateral sepals.

Syn.: *Masdevallia borucana* P.H. Allen, Ceiba 3: 14, 1952.

Ety.: Named for Boruca, Panama, where the species was collected.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls relatively slender, erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 8-13 cm long including the petiole 2-4 cm long, the blade narrowly obovate, 1.7-2.3 cm wide, the apex obtuse to rounded, narrowly cuneate below into the petiolate base. **Inflorescence** a sublax, successively few-flowered raceme 1-1.5 cm long, borne by a slender, suberect to ascending peduncle 9-14 cm long, round in cross section, with a bract below the middle, from near the base of a ramicaul; floral bracts thin, 6 mm long; pedicels 12 mm long; ovary 4-5 mm long; **sepals** purple, orange toward the bases, essentially glabrous, the dorsal sepal narrowly obovate, 16-18 mm long, 4.5 mm wide, connate to the lateral sepals for 8 mm to form a short tube, the free portion triangular, acute, produced into a slender, erect, orangish tail ca. 5 cm long, the lateral sepals oblique, broadly falcate, ca. 25 mm long, connate about 18 mm into a laterally compressed synsepal, 26 mm broad expanded, conspicuously deflexed near the middle between a mentum below the column-foot and a larger secondary mentum, the more or less broadly obtuse, oblique, approximate apices abruptly contracted into slender tails ca. 4 cm long; **petals** white, oblong, 6 mm long, 2 mm wide, the apex obtuse, minutely apiculate, the labellar half longitudinally callous, ending in a low, rounded callus above the base; **lip** ivory, diffusely and irregularly spotted with purple, oblong-subpandurate, 5 mm long, 1.75 mm wide, with marginal folds above the middle, the epichile ovate, obtuse, minutely verrucose, lightly undulate, the hypochile oblong, subcordate, hinged below; **column** yellow-white, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

COSTA RICA: Without locality or date, *Zahn s.n.* (Holotype: W). Without locality or date, *Pfau 209* (W). **Puntarenas**: epiphytic in forest near Palmar Norte de Osa, Boruca, alt. 100 m, 6 Nov. 1949, *P.H. Allen* 5361 (holotype of *M. borucana*: Escuela Agricola, Panama; isotype: US); Boruca, alt. 2-300 m, 20 Sept. 1978, collected by R.A. Ocampo, *C. Todzia 454* (CR); Peninsula de Osa, Ganado de Sierpe, alt. 10-50 m, 27 Oct. 1979, *C. Todzia 971* (CR); epiphytic along a stream bed, north of Golfito, July 1977, collected by Janet Kuhn, cultivated at J & L Orchids, Easton, CT, 10 Nov. 1977, *C. Luer 2152* (SEL); Río Volcán, Buenos Aires del General, alt. 400 m, 27 Dec. 1979, *R. Jenny 165* (K); Buenos Aires, road to Ujarrás, alt. 800 m, 10 May 1987, *D.E. Mora s.n.* (USJ).

PANAMA: **Chiriquí**: epiphytic along Río Escaria west of San Vicente, alt 500 m, 8 Dec. 1983, *C. Luer, J. Luer & H. Butcher 9329* (SEL).

This species was first discovered in Costa Rica over a century ago by a collector named Zahn, who reportedly drowned soon thereafter in a stream. The plants were imported into Europe by Messrs. Veitch of Chelsea, England, and Mr. Day supplied Reichenbach with a flowering specimen in September 1876.

*Masdevallia lata* occurs occasionally in the low, moist forests of the Pacific watershed of Costa Rica and western Panama where it usually grows in the branches of trees that overhang streams. *Masdevallia sanctae-fidei* has been misidentified as *M. lata* in *Venezuelan Orchids Illustrated*. *Masdevallia lata* is easily identified by the long, slender, terete, ascending peduncle; and successive flowers with broadly rounded, more or less compressed, approximate lateral sepals that are deeply arched beneath. The petals are oblong with a rounded basal callus, and the lip is divided by marginal folds.

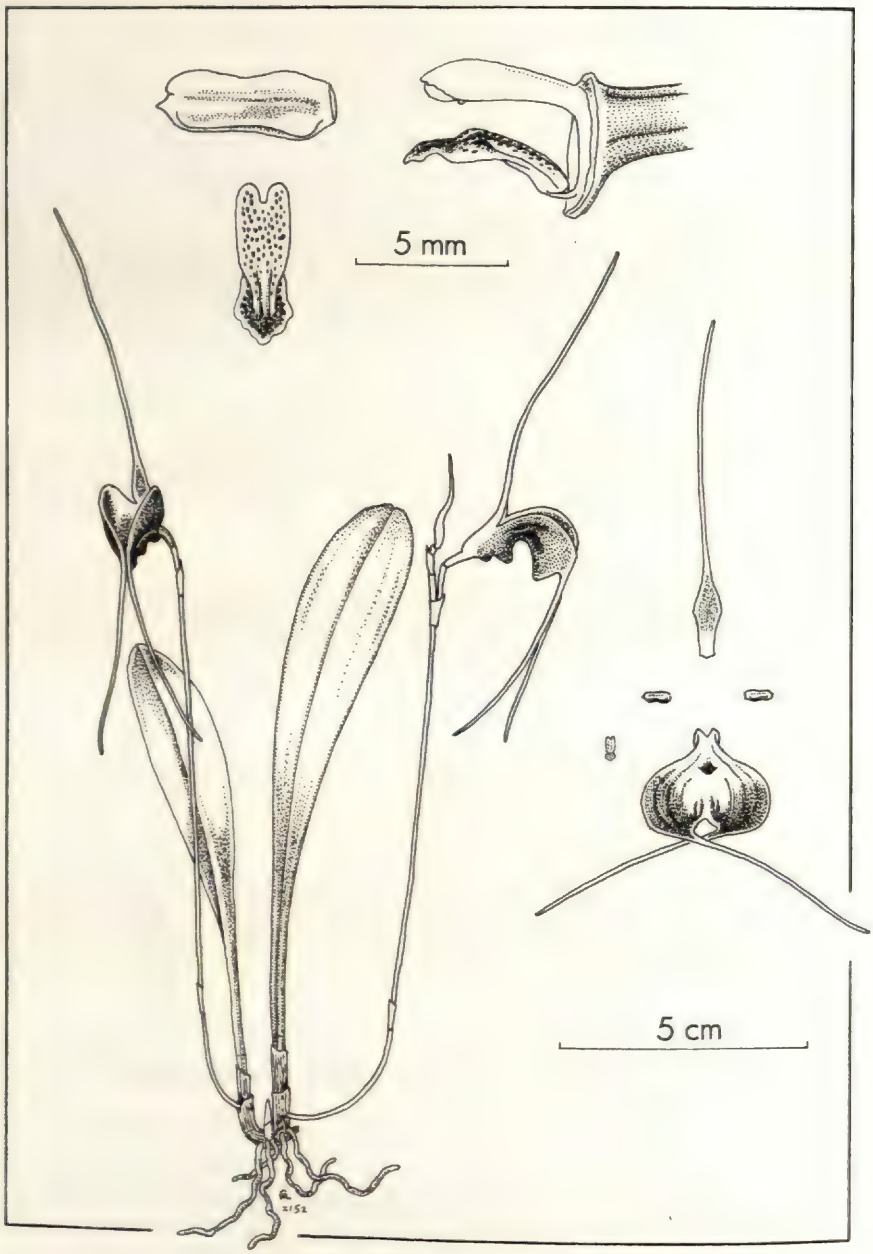



Plate 121. Masdevallia lata

**Masdevallia maduroi** Luer, Monogr. Syst. Bot. 72: 110, 1998.

Ety.: Named for Andrés Maduro of Panama, collector and cultivator of this species.

**Plant** medium in size, epiphytic, caespitose; roots comparatively slender. Ramicauls erect, stout, 1.5-3 cm long, enclosed by 2-3 loose, deciduous, tubular sheaths. **Leaf** erect, thickly coriaceous, 9-15 cm long including the petiole 2.5-3.5 cm long, the blade elliptical-obovate, obtuse, 2-3 cm wide, cuneate below into the stout, deeply channeled petiole. **Inflorescence** a successive, loosely few-flowered raceme, 0.5-2 cm between flowers, borne by a very slender, arching to pendent peduncle 15-17 cm long, with 2-3 distant bracts, from the base of a ramicaul; floral bract tubular, 8-10 mm long; pedicel 7-9 mm long; ovary 8-10 mm long; **sepals** glabrous, the dorsal sepal forwardly directed, yellow-green, suffused with purple above the middle and along the veins, light orange toward the base, broadly ovate, 17 mm long, 16 mm wide, obtuse, contracted into a slender, yellow-green tail 4-5.5 cm long, connate to the lateral sepals for 7 mm into a somewhat flattened flower with a short sepaline cup, the lateral sepals purple, connate 23 mm into an ovate, deeply rugose, bifid lamina, 35 mm long, 25 mm wide, concave centrally, the apices acute, contracted into light green tails similar to that of the dorsal sepal; **petals** white, cartilaginous, obliquely elliptical, narrowly truncate, 9 mm long, 4 mm wide, with a tall, erect lamella above the labellar margin, terminating above the base in an acute angle; **lip** yellow above the middle, tan below the middle, oblong-pandurate, narrowed near the middle, 10 mm long, 5 mm wide, the apex obtuse, minutely denticulate, the disc with a pair of oblique folds above the middle, shallowly concave below the middle, the base subcordate, hinged beneath nearly to the middle; **column** white, semiterete, 8 mm long, the foot 4 mm long, the free extension 3.5 mm long.

PANAMA: **Chiriquí**: "Fortuna," alt. 1200 m, collected and cultivated by Maduro's Tropical Flowers, flowered in cultivation at J & L Orchids, Easton CT, 16 Oct. 1998, *C. Luer 18932* (Holotype: MO).

This species, apparently endemic in westernmost Panama, is related to sympatric *M. lata* and *M. thienii*. The extremely thin peduncle originates from the base of a ramicaul. The peduncle is about as long as the leaf, but because of the weight of the large, successive flowers, the raceme becomes pendent. The sepals are connate into a cup with the dorsal sepal held forward. The lateral sepals are connate into a deeply rugose synsepal with a central, conical concavity. A tall lamella is present on the petals above the lower margin. The lip is large with prominent, non-marginal folds at a constriction above the middle. Most unusual is the large callous base beneath that extends nearly to the middle, to which the elongated extension of the column-foot is hinged.

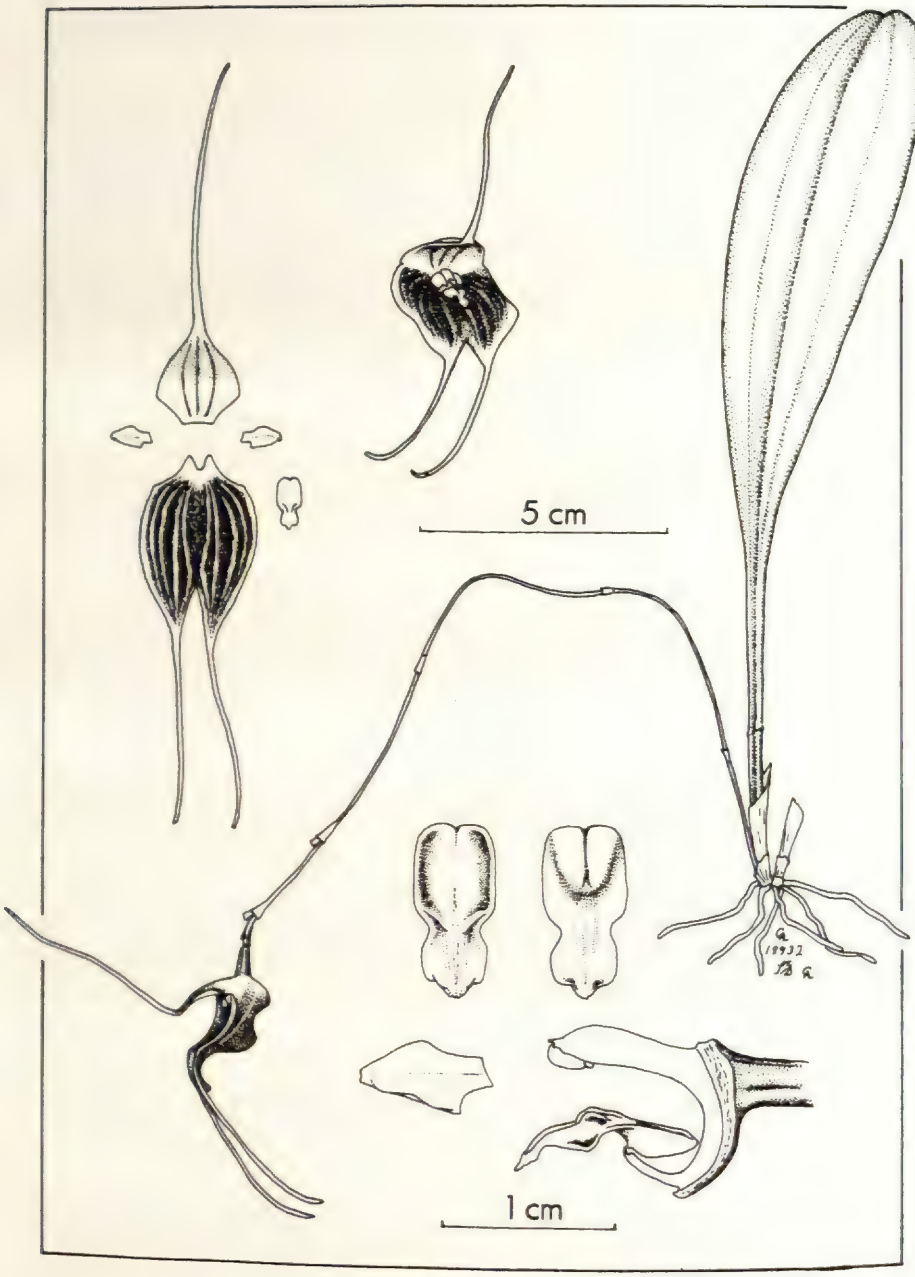



Plate 122. Masdevallia maduroi

**Masdevallia mayaycu** Luer & Hirtz, Lindleyana 3: 201, 1988.

Ety.: Named for the local Shuari chief Mayaycu.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, 10-12 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 5-7.5 cm long including the petiole 1-1.5 cm long, 1.5-2 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested, several-flowered raceme, up to 1.5 cm long or longer, by a slender, suberect peduncle round in cross section, 7-8 cm long, with a bract at the base, from low on the ramicaul; floral bracts thin, 6-7 mm long, imbricating; pedicels 7-8 mm long; ovary 3 mm long; **sepals** glabrous, the dorsal sepal green, the 3 veins dotted with purple externally, obovate, 10 mm long, 4 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical, sepaline tube, the free portion triangular with the acute apex contracted into a slender, green tail 15 mm long, the lateral sepals deep purple, elliptical, subacute, oblique, 15 mm long, connate to each other for 12 mm to form an elliptical lamina 10 mm wide expanded, with a broad, white stripe down the center, the apices contracted into slender, terete, green tails 10 mm long; **petals** white, oblong, 5 mm long, 1.5 mm wide, the apex obtuse, notched, the labellar margin with a low, longitudinal callus; **lip** deep purple, oblong, 5 mm long, 2 mm wide, with tall, rounded, marginal folds near the middle, the epichile ovate, the apex obtuse, verrucose, the hypochile oblong, the base subcordate, hinged beneath; **column** green with the edge purple, semiterete, 4.5 mm long, the foot 3 mm long, with a very short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, epiphytic in forest east of Mayaycu, alt. 1500 m, 20 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13521* (Holotype: MO).

This species is apparently rare in southeastern Ecuador where only a single plant has been found on two occasions. Vegetatively, it is not distinctive. The long, slender peduncle is terete and produces flowers successively in a congested raceme. The relatively small flowers are similar to those of *M. bicolor* and relatives. The dorsal sepal is green, and the synsepal is deep purple with a prominent, white, central stripe. The petals are oblong and bidentate at the tip. The lip is dark purple with a verrucose epichile.

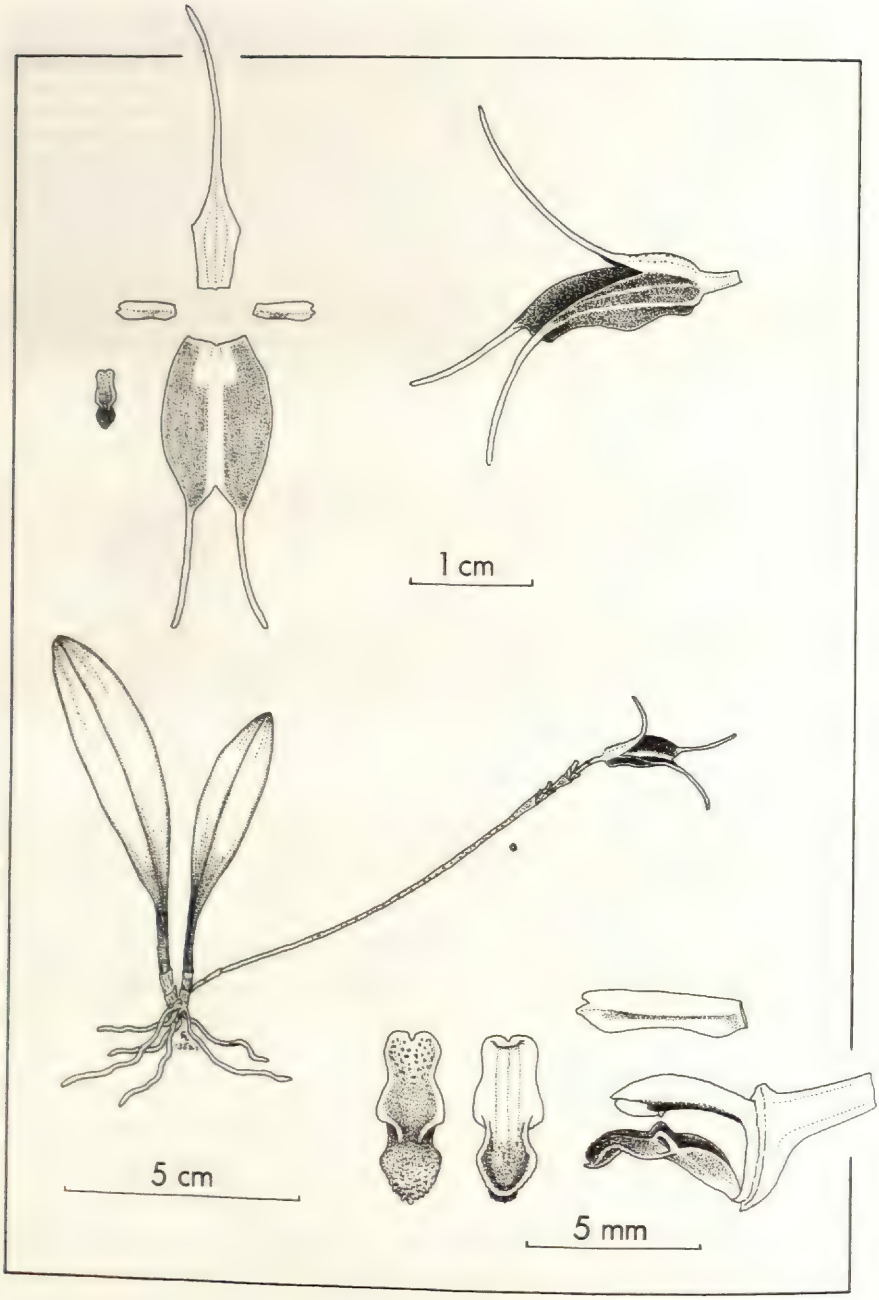



Plate 123. Masdevallia mayaycu

**Masdevallia menatoi** Luer & Vásquez, Phytologia 46: 351, 1980.

Ety.: Named in honor of Dino Menato of Chulumani, Bolivia, who discovered this species.

Syn.: *Masdevallia foeda* Luer & Vásquez, Lindleyana 3: 198, 1988.

Ety.: From the Latin *foedus*, "ugly," Rodrigo Escobar's opinion of the plant.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-4.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 7-15 cm long including the 2-4 cm long petiole, the blade elliptical to obovate, subacute to obtuse, 1.8-3 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested raceme of 2-6 successive flowers, 2 often occurring simultaneously, borne by an erect or suberect, terete peduncle, often speckled with purple, 8-10.5 cm long, with a bract at the base, from low on the ramicaul; floral bract oblique, 6-14 mm long; pedicel dotted with purple, 10-15 mm long; ovary 3-5 mm long; **sepals** fleshy, microscopically pubescent within, the dorsal sepal brown to yellow, lightly suffused with rose, obovate, 10 mm long, 6-7 mm wide, connate to the lateral sepals for 6-7 mm to form a broad, cylindrical tube, the free portion broadly triangular with the subacute apex contracted into an erect, terete, orange tail 6-10 mm long, sometimes slightly thickened toward the apex, the lateral sepals brown or yellow, suffused with brownish purple, more or less obovate, oblique, 12-14 mm long, connate 8-9 mm, the free portions rounded, 7 mm wide, abruptly contracted into orange, recurved tails 4-5 mm long; **petals** yellowish white, narrowly oblong, 5-6 mm long, 1.5 mm wide, the apex irregularly dentate, the labellar half with a low, longitudinal carina ending in an obtuse angle above the base; **lip** yellow, dotted with purple-brown, oblong-pandurate, 6 mm long, 2.75 mm wide, with obtusely angled marginal folds above the middle, the epichile obovate, obtuse, minutely verrucose and denticulate, the hypochile oblong with broadly rounded, suberect margins, sulcate centrally, the base retuse, hinged on the end; **column** greenish white with purple margins, semiterete, 5 mm long, the foot 3 mm long with a short, incurved extension.

BOLIVIA: **La Paz**: Sud Yungas, epiphytic in forest near Chulumani, alt. ca. 1800 m, collected by D. Menato, cultivated in Chulumani, 31 Jan. 1980, *C. Luer & R. Vásquez 5039* (Holotype: SEL; Isotype: Herb. Vasquezianum; clonotype: K); without locality, probably near Chulumani, collected by Dino Menato, cultivated at Colomborquídeas in Colombia, 6 Apr. 1988, *C. Luer 13058* (holotype of *M. foeda*: MO); without locality, probably near Chulumani, collected by Dino Menato, cultivated at Colomborquídeas in Colombia, 13 Apr. 1987, *C. Luer 11293* (MO); probably same collection, flowered at Colomborquídeas 20 Apr. 1988, *C. Luer 13376* (MO).

This usually floriferous species was first collected by Dino Menato many years ago in virgin forest near his home in the South Yungas of Bolivia where it is apparently endemic. As with its counterpart *M. bicolor* in section *Alaticaules*, it is also variable in size, color, and morphological details.

Superficially similar to *M. bicolor*, *M. menatoi* flowers frequently through the year. The habit is reminiscent of those species of section *Alaticaules* with a triquetrous peduncle. Vegetatively, the plant is similar to many other medium-sized species in the subgenus *Polyantha*, but the leaves are often more broadly elliptical with a longer more or less distinct petiole. The erect, terete, purple-speckled peduncle, which most easily distinguishes *M. menatoi* from *M. bicolor*, produces a similar, successively flowered raceme of small, yellow and purple to brownish

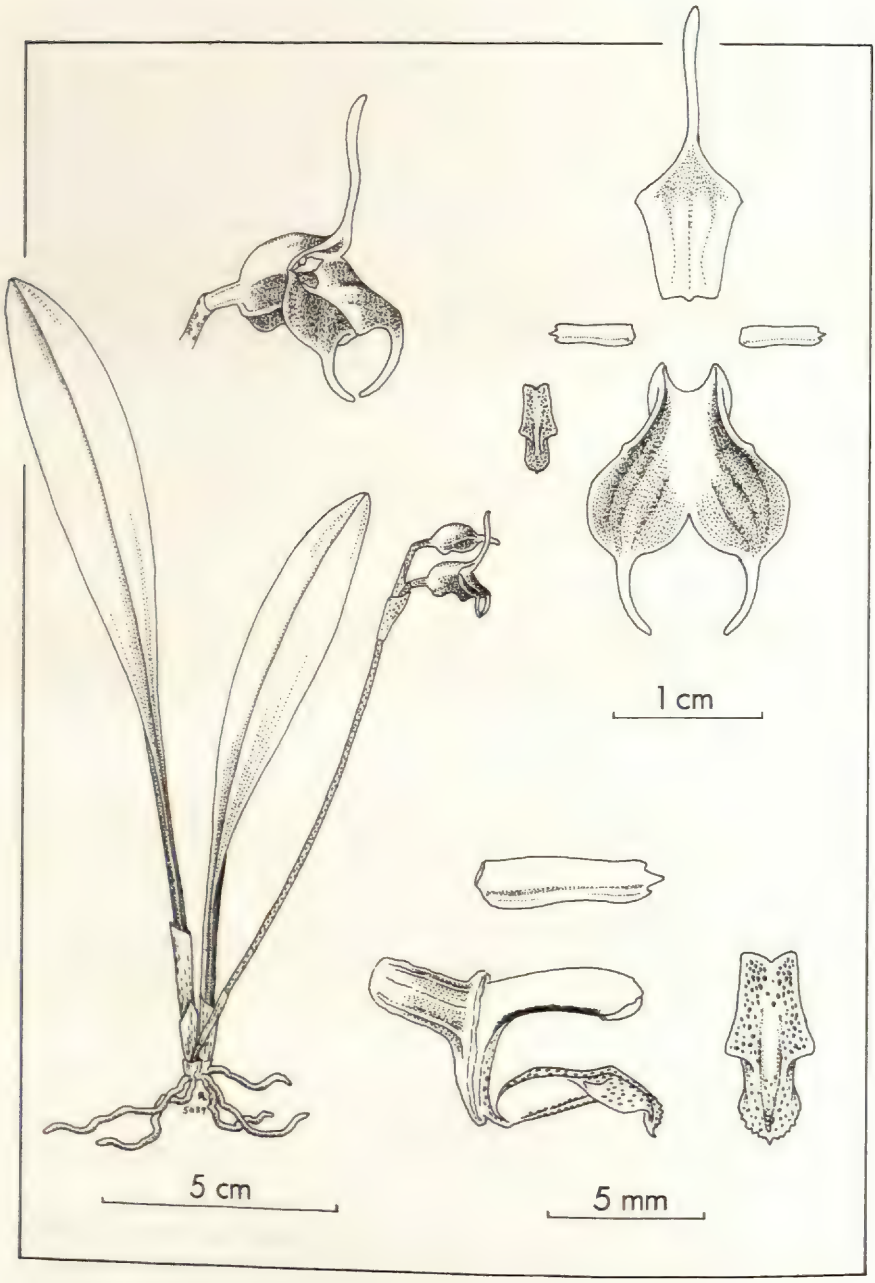



Plate 124. Masdevallia menatoi

flowers. The sepals are fleshy and connate into a cylindrical tube. The tail of the dorsal sepal ascends or stands erect. The lateral sepals are connate to above the middle with the rounded apices abruptly contracted into much shorter, stout tails. The petals are oblong, longitudinally callous on the lower half, and the apex is irregularly dentate. The lip is divided into an epichile and a hypochile by marginal folds that vary from broad and extending beyond the margins, to short and erect within the margins.

A later collection with broader leaves and slightly smaller, brown flowers was described as *M. foeda*. Although the lip of the latter has the short folds within the margins, these differences seem too trivial to maintain at the specific level.

What appears to be merely a variation with even shorter peduncles was described from Peru as *M. cosmia*. Although the flowers appear essentially the same, they are produced slowly in *M. cosmia* and rapidly in *M. menatoi*.

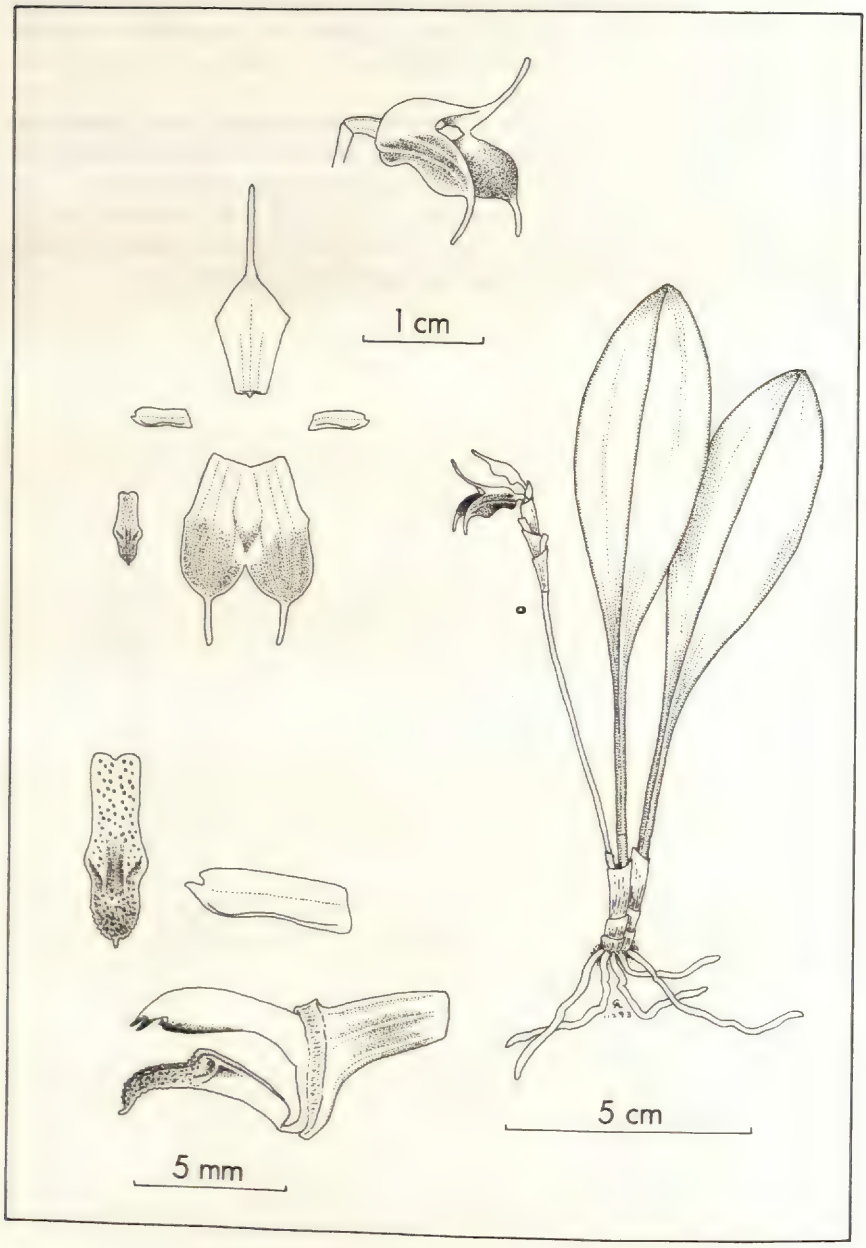


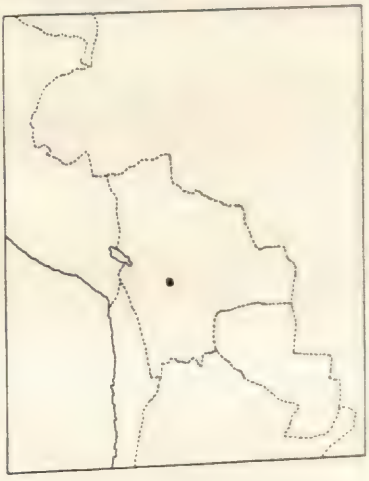

**Plate 125. Masdevallia menatoi**
(M. foeda)

**Masdevallia oreas** Luer & Vásquez, Selbyana 5: 395, 1981.

Ety.: Named for the mythological mountain-nymph Oreas.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 6-8.5 cm long including the petiole 1-1.5 cm long, the blade elliptical, subacute, 1-1.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested, successively few-flowered raceme, ca. 1 cm long, occasionally 2 flowers produced simultaneously, borne by an erect to suberect, terete peduncle, 6-9.5 cm long, with a bract near the base, from low on the ramicaul; floral bracts tubular, 6-8 mm long; pedicel 7-12 mm long; ovary 3 mm long; **sepals** orange, glabrous, the dorsal sepal oblong, 7 mm long, 4 mm wide, connate to the lateral sepals for 6 mm to form a cylindrical tube, the free portion broadly triangular, obtuse, contracted into an erect, slender, orange tail 2-3 cm long, the lateral sepals diffusely suffused with purple, connate 6 mm into an obovate, bifid synsepal, 15 mm long, 10 mm wide, with a shallow mentum, the apices subacute, contracted into recurved tails similar to that of the dorsal sepal; **petals** creamy white, linear-oblong, 5 mm long, 1-1.5 mm wide, with the apex acute, shortly acuminate, the labellar margin with a low, thin keel terminating in a low, rounded callus at the base; **lip** cream, diffusely dotted with dark purple, oblong-pandurate, 4.5 mm long, 1.5 mm wide, with marginal folds above the middle, the epichile minutely verrucose, ovate, obtuse, abruptly apiculate, the hypochile oblong, with the base subcordate, hinged on the end; **column** purple, semiterete, 4 mm long, the foot stout, 3 mm long, with an incurved extension.

BOLIVIA: **La Paz**: Inquisivi, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2200 m, 29 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5778* (Holotype: SEL; clonotype: K), same collection, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13231* (clonotype: MO).



This species, endemic on the north slopes of the Andes of north-central Bolivia, is known only from the original collection. It has proved to be an easily propagated, vigorous, floriferous species. The terete peduncle produces a successively few-flowered raceme of orange and purple, long-tailed flowers that resembles the ubiquitous *M. bicolor* of section *Alaticaules* with a stout, triquetrous peduncle. In section *Polyanthae*, it is closely allied to the short-tailed *M. menatoi*.

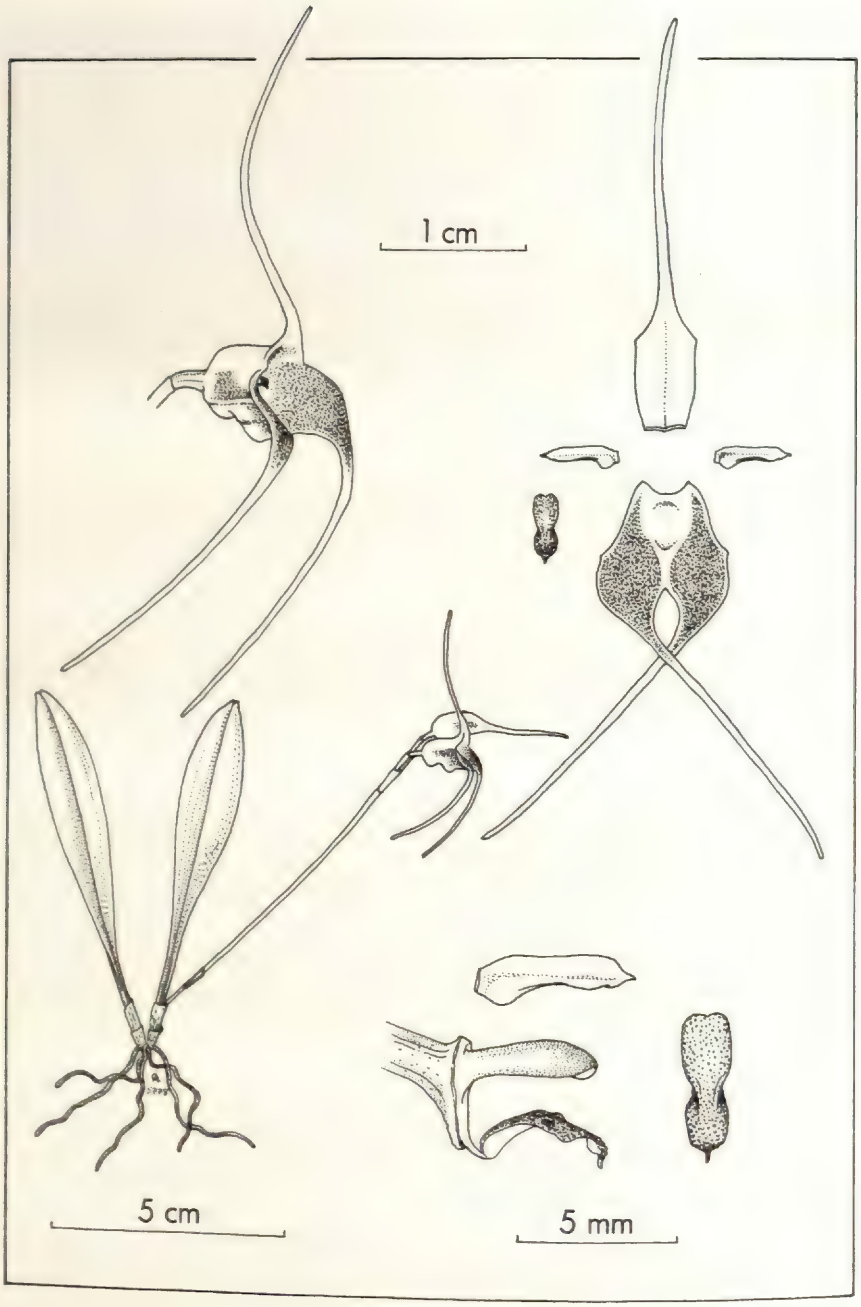



Plate 126. Masdevallia oreas

**Masdevallia pyxis** Luer, Phytologia 39: 236, 1978.

Ety.: From the Latin *pyxis*, "a small box," referring to the shape of the sepaline tube.

**Plant** medium in size, terrestrial to lithophytic, caespitose; roots coarse. Ramicauls stout, erect, 2-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 7-16 cm long including the petiole 1.5-5 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 1-2.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, dotted with purple, 4-5 cm long, with a bract near the base, from low on the ramicaul; floral bract loosely tubular, speckled with purple, 10 mm long; pedicel dotted with purple, 10-15 mm long; ovary 5 mm long, acutely deflexed on the pedicel; **sepals** glabrous, the dorsal sepal yellow-green, dotted with red externally along the midvein, oblong, 11 mm long, 7 mm wide, connate to the lateral sepals for 10 mm into a cylindrical tube, the free portion transversely triangular, obtuse, contracted into a yellow, suberect tail 10 mm long, the lateral sepals dark red-purple, completely connate into a broadly elliptical, deeply cymbiform, obtuse synsepal, 20 mm long, 15 mm wide expanded, the apex terminated by diverging, green tails 3 mm long; **petals** white, oblong, 6.5 mm long, 2 mm wide, the apex obtuse, obscurely bilobed, slightly sulcate centrally between thickened halves; **lip** ivory, spotted with red-purple, obovate-oblong, 7 mm long, 2.5 mm wide, with marginal folds above the middle, the epichile rounded verrucose above the margin, the disc shallowly channeled between the converging pair of calli near the middle, the hypochile oblong, retuse, hinged beneath; **column** white, semiterete, 6 mm long, the foot 3 mm long with a short, incurved extension.

PERU: **Huánuco**: near Tingo Maria, March 1973, collected by Janet Kuhn, cultivated at La Ceja, Colombia, by M. & O. Robledo, 21 Jan. 1978, *C. Luer 2295* (Holotype: SEL; Isotype: JAUM; clonotype: K); terrestrial in shaded humus east of Panao, alt. 2650 m, 8 Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer & M. Arias 5317* (SEL); terrestrial on exposed, rocky slopes between Tullca and Acomayo, alt. 2500 m, 10 Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer & M. Arias 5365* (SEL); near Acomayo, lithophytic, alt. 2300 m, Sept. 1981, *M. Arias A-42* (USM); near Molinas, lithophytic, alt. 2300 m, Sept. 1981, *M. Arias A-44* (USM).

This species is endemic in one area of north-central Peru where it is locally abundant, often growing fully exposed among scrub vegetation on rocky slopes. Along a quebrada it grows in leafy humus in company with *M. pandurilabia*.

*Masdevallia pyxis* is distinguished by the boxlike flower on peduncles less than half as tall as the leaves. The short-tailed dorsal sepal is yellow, while the dark purple, lateral sepals are completely connate into a longer, concave synsepal. At the tip of the synsepal, the two, very short tails protrude.

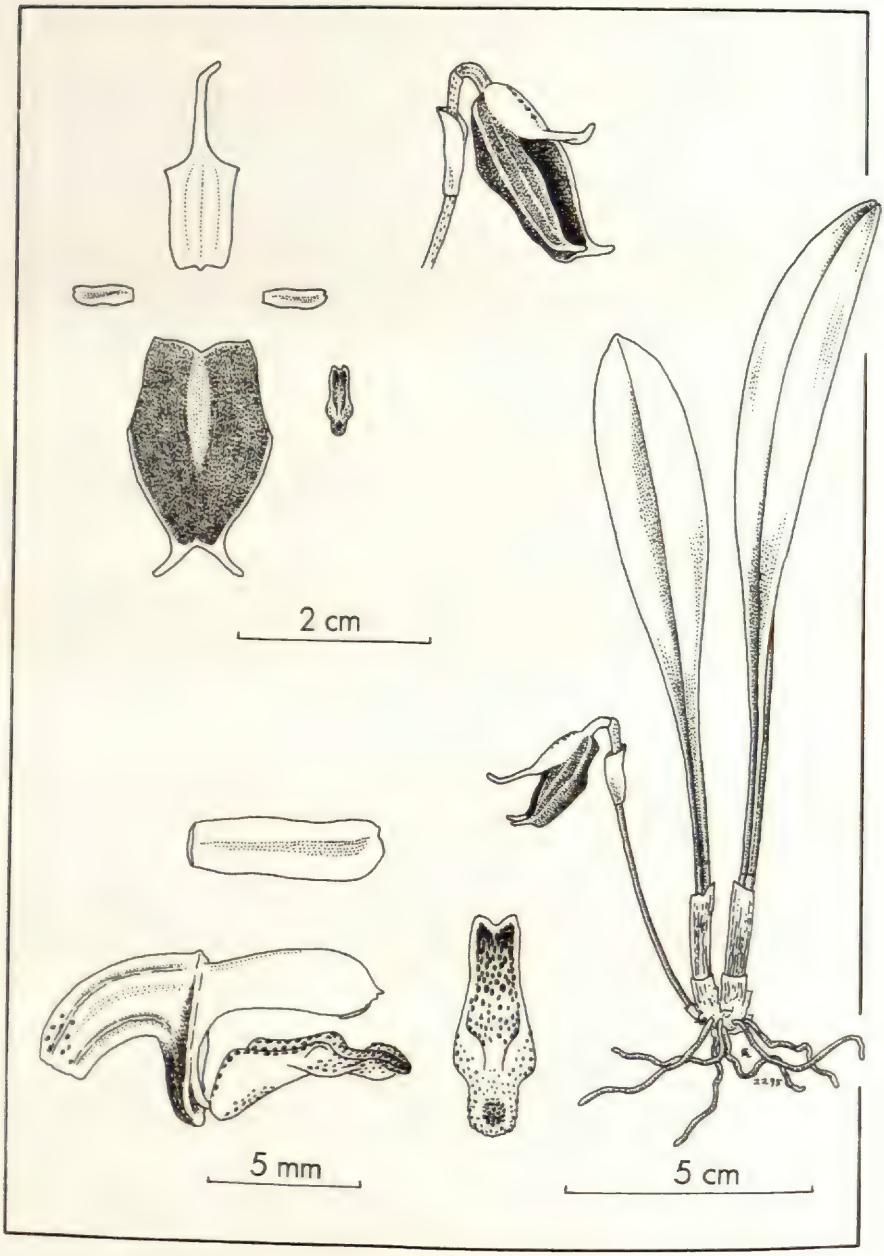



Plate 127. Masdevallia pyxis

**Masdevallia schlimii** Linden ex Lindl., Orch. Linden. 5, 1846.

Ety.: Named in honor of Louis Schlim, Jean Linden's traveling companion and half-brother, who discovered this species.

Syn.: *Masdevallia polyantha* Lindl., Orch. Linden. 6, 1846.
Ety.: From the Greek *polyanthos*, "many-flowered," referring to the inflorescence.

Syn.: *Masdevallia schlimii* var. *polyantha* (Lindl.) Woolw., Monogr. Genus Masdevallia t. 47, 1896.

**Plant** large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 3-6 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 10-21 cm long including the petiole 2-4 cm long, the blade elliptical, obtuse, 2.5-3.5 cm wide, narrowed below into the petiolate base. **Inflorescence** a loose, simultaneously 4- to 6-flowered raceme borne by an erect peduncle 30-40 cm long, round in cross section, dotted with purple, with 2-3 distant bracts, from near the base of a ramicaul; floral bracts imbricating, 10-15 mm long; pedicels 20-35 mm long; ovary 5 mm long; **sepals** microscopically cellular-glandular within, the dorsal sepal yellow-orange, the blade obovate, 10 mm long, 6 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical tube, the free portion triangular, acute, the apex contracted into an erect or reflexed, slender tail 4-5 cm long, the lateral sepals purple-brown, oblong, oblique, 22 mm long, connate for 18 mm to form a lamina 16 mm wide with a broad, shallow mentum, the obtuse apices contracted into tails 3-4 cm long; **petals** white, oblong, 6 mm long, 1.25-2.5 mm wide, the apex subtruncate, apiculate, the labellar half with a longitudinal callus ending in a short, obtuse tooth above the base; **lip** dull rose, diffusely dotted with purple, oblong-subpandurate, 6 mm long, 1.5-2 mm wide, shallowly channeled medially, with marginal folds above the middle, the epichile ovate, acute, entire, the hypochile oblong, subcordate at the base, hinged beneath; **column** yellow-white, semiterete, 5.5 mm long, the foot stout, 2 mm long with a short, incurved extension.

VENEZUELA: **Mérida**: Valle, near Mérida, epiphytic on old trees, alt. 7,500 ft., Aug. 1843, *J. Linden 666* (Holotype: K; Isotypes: W, BR); Valle, near Mérida, alt. 6,000 ft., Apr. 1847, *L. Schlim 1497* (BM, BR, G, K, LD, P, W); Páramo de Portachuela, alt. 11,500 ft., June-Sept. 1843, *J. Linden 705* (holotype of *M. polyantha*: K; isotype: W): "Mérida," alt. 10,000-12,000 ft., 1882, *Arnold s.n.* (W); alt. 6,000 ft., *Arnold s.n.* (W); between Canaguá and La Quebrada, alt. 1925-2175 m, 10 May 1944, *J.A. Steyermark 56464* (AMES); Las Quebraditas, between Jaji and Gonzales valley, alt. 2000 m, 12 Apr. 1949, *J. Renz 5371* (BAS). **Trujillo**: between Trujillo and Boconó, alt. 2500 m, 30 Apr. 1948, *J. Renz 4651* (BAS); Canelejos, between Egido and Paramo Los Gonzales, alt. 2600 m, 30 Apr. 1949, *J. Renz 5372* (BAS).
COLOMBIA: **Norte de Santander** (old dept. of Ocaña): alt. 3200 m, 1846-52, *L. Schlim 414* (BR, K, P, W); Ocaña, *G. Wallis s.n.* (W). **Santander**: Páramo de San Turbán, alt. 2400-2600 m, collected by R. Mejía, 1973, cultivated by M. & O. Robledo at La Ceja, Colombia, 21 July 1978, *C. Luer 2328* (SEL).

This species was first discovered by Jean Linden and his half-brother Louis Schlim while on an orchid collecting trip to New Grenada. Specimens numbered 666 and 705 were collected near Mérida in present-day western Venezuela. The first was named *M. schlimii* by Lindley at the request of Linden, and the second, published simultaneously, was named *M. polyantha*. Although Lindley stated that the flowers of the latter are much smaller and more compactly arranged in the raceme, these two type-specimens at Kew appear very much the same.

*Masdevallia schlimii* occurs in western Venezuela and adjacent eastern Colombia. It is very similar to *M. sceptrum*, which is frequent in the Eastern Cordillera of Colombia. The two species are readily separated by their peduncles, that of *M. schlimii* being terete, and that of *M. sceptrum* being triquetrous. The flowers differ mainly in the petals and lip, the petal of *M. schlimii* bearing a basal process, and the lip of *M. schlimii* with a proportionately longer hypochile.

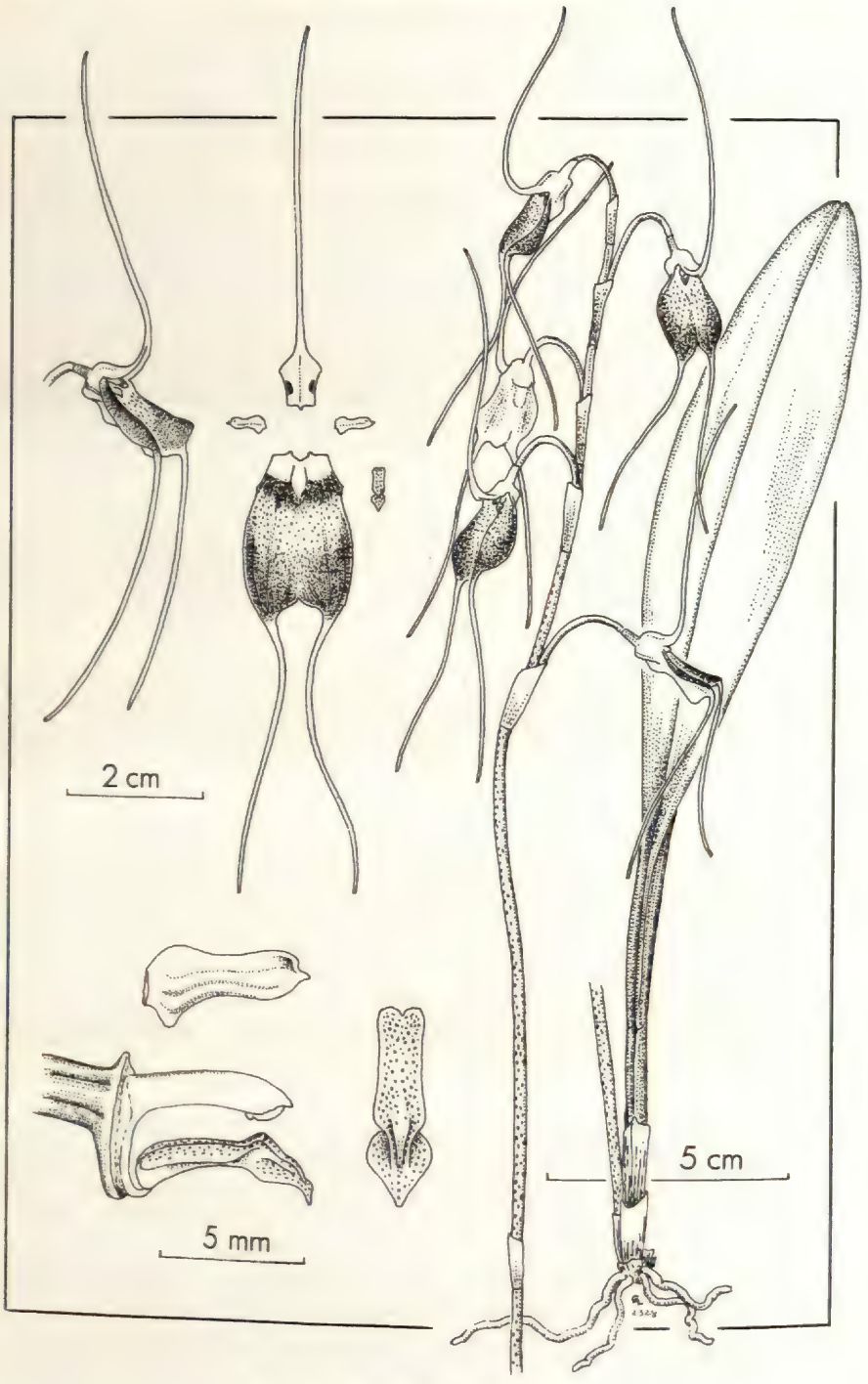



Plate 128. Masdevallia schlimii

**Masdevallia striatella** Rchb.f., Gard. Chron. n.s., 26: 103, 24 July 1886.

Ety.: From the Latin *striatellus*, "with little stripes," referring to the purple-striped sepals.

Syn.: *Masdevallia chloracra* Rchb.f., Flora 69: 560, 11 Dec. 1886.

Ety.: From the Greek *chloracros*, "green tips," referring to the thick, green apices of the sepals.

Syn.: *Masdevallia superflua* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 414, 1921.

Ety.: From the Latin *superfluus*, "superfluous," possibly referring to Kränzlin's idea of the similarity to *M. demissa*.

Syn.: *Masdevallia demissa* var. *superflua* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 80, 1925.

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-12 mm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect to suberect, coriaceous, 5-10 cm long including a petiole 2-3 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 0.8-1.3 cm wide, gradually narrowed below into the indistinct petiole. **Inflorescence** a single flower, sometimes followed by a second flower, borne by a slender, erect to suberect peduncle, 3-7 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 7-10 mm long; ovary 4-5 mm long; **sepals** yellowish white or greenish white, each with 3 purple stripes, each with a short, thick, green tail, glabrous (microscopically pubescent) within, the dorsal sepal obovate, 14-18 mm long, 7-8 mm wide, connate to the lateral sepals for 7-10 mm into a cylindrical sepaline tube, the free portion triangular with the apex subacute, contracted into a thick, green tail 3-5 mm long, 2 mm thick, the lateral sepals ovate, oblique, 12-16 mm long, 6-7 mm wide, connate 5-7 mm, the apices obtuse, tapering into tails similar to that of the dorsal sepal; **petals** white with a purple midvein, elliptical-oblong, 6-6.5 mm long, 2.5-3 mm wide, both halves callous, the labellar half greater with an obtuse angle below the middle, the apex obtuse, more or less apiculate; **lip** dull yellow or green with 3 purple, longitudinal stripes, oblong, 7.5-8 mm long, 2.25-3.25 mm wide, with oblique, callous folds near the middle, the apex obtuse, minutely verrucose, the disc shallowly sulcate the base dilated, subcordate, with thin, elevated margins, hinged on the end: **column** white with purple margins, semiterete, 5.5-6.5 mm long, the foot 3 mm long with a short, incurved extension.

COSTA RICA: without collection data, imported by J. O'Brien, cultivated at Downside, Leatherhead, England, 1886, by *W. Lee s.n.* (Holotype: W); cultivated at the Royal Botanic Garden, Glasnevin, Ireland, 1886, by *F.W. Moore s.n.* (K); cultivated at the Hamburg Botanic Garden, Hamburg, 1886, *annonyous* (holotype of *M. chloracra*: W); without locality, Dec. 1915, *C.H. Lankester s.n.* (BM). **Alajuela**: Palmira de Alfaro, alt. 1750-1800 m, 12 Dec. 1924, *A.M. Brenes 2404* (CR); near Fraijanes, alt. 1500-1700 m, 12 Feb. 1926, *P.C. Standley & R. Torres 47550, 47558* (AMES); Viento Fresco, alt. 1600-1900 m, 13 Feb. 1926, *P.C. Standley & R. Torres 47732* (AMES); ; Cerro Cedrál, alt. 1800-2400 m, *C. Horich s.n.* (AMES, K, MO, UC); near Cerro Porvenir, alt. 2000 m, 24 Dec. 1974, *R.L. Wilbur & J.L. Luteyn 18737* (DUKE, MO); above Poasito, Volcán Poás, alt. 2000 m, 12 Sept. 1979, *C. Luer, J. Luer, K. Walter & C. Todzia 4134* (SEL). **Cartago**: near Tobósi, *A. Endres 256* (holotype of *M. superflua*: W; isotype: BR); Cerro Carpintera, above La Union de Tres Ríos, alt. ca. 1500 m, 1 Nov. 1929, *C.W. Dodge & W.S. Thomas 4786* (MO); Palmira, alt. 2250 m, 27 Oct. 1938, *A. Smith H1299* (AMES, K); near Empalme, alt. 1900 m, 14 Sept. 1979, *C. Luer, J. Luer & K. Walter 5224* (SEL). **Guanacaste**: Monteverde, north of Santa Elena, alt. 1500 m, 20 Dec. 1985, *W.A. Haber & E. Bello 3795* (CR, MO); Abangares, north of Monteverde, alt. 1550 m, 13 Dec. 1988, *W. Haber & W. Zuchowski 8942* (CR, MO); south of Santa Cecilia, Estación Pitilla, alt. 400 m, 24 Oct. 1990, *C. Chávez 345* (CR, K). **Heredia**: Yerba Buena, northeast of San Isidro, alt. 2000 m, 22 Feb. 1926, *P.C. Standley & J. Valerio 49094, 49101, 49261, 50154, 50166* (AMES); Cerro Central de Zurquí, alt. 1520-1600 m, 26 Dec. 1929, *C.W. Dodge, J. Valerio et al. 6126* (AMES); near Vara Blanca, alt. 1000 m, 15 Sept. 1979, *C. Luer, J. Luer & K. Walter 4180* (SEL). **Puntarenas**: Monteverde, Finca Canadá, alt. 1500 m, 6 Dec. 1988, *E. Bello 565* (CR, MO); Monteverde, alt. 1500 m, Nov.-Dec. 1989, *W. Morris & J.T. Atwood 4008, 4012, 4050* (CR,

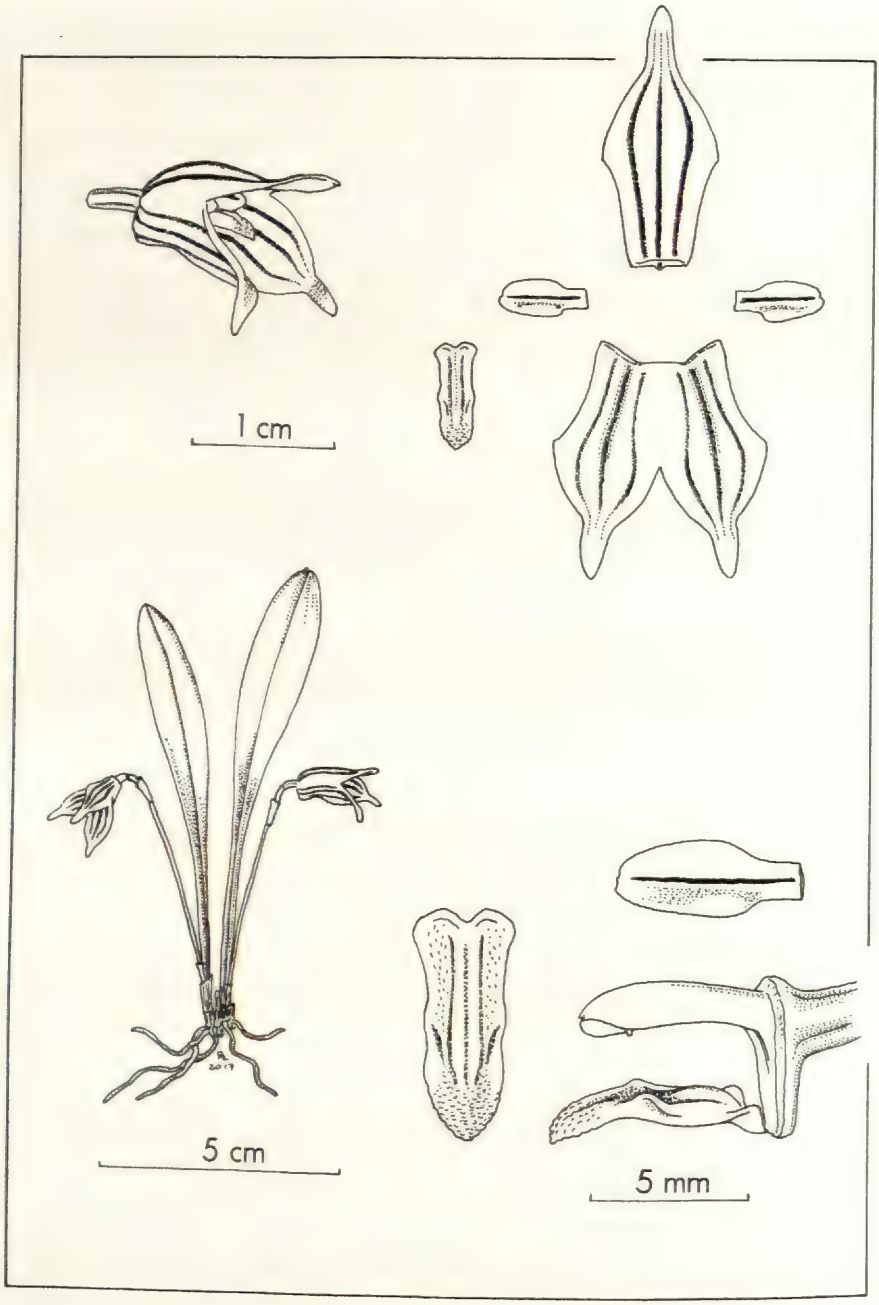



Plate 129. Masdevallia striatella

MO, SEL); Monteverde, *W. Haber & W. Zuchowski 8810* (MO, USJ); Monteverde, alt. 1500 m, 19 Nov. 1992, *S. Ingram & K. Ferrell-Ingram 1744* (MO, SEL). **San José**: environs of San José, alt. 1135 m, Nov. 1890, *Biolley 3127* (CR); Carpintera, alt. 6,000 ft., 1923, *C. H. Lankester 552* (AMES); Cerros de Zurquí, northeast of San Isidro, alt. 2000-2400 m, *P.C. Standley & J. Valerio 50720, 50761, 50767, 50775* (AMES); Heights of La Carpintera, alt. 1200-2000 m, 1 Dec. 1937, *P.H. Allen 505* (AMES, MO); Carpintera Mts., alt. 1700-1800 m, *C. Horich s.n.* (AMES, MO, UC).
PAMAMA: *Chiriquí*: Upper Río Chiriquí Viejo, 18 Jan. 1938, *G. & P. White 81* (MO).
?VENEZUELA: **Falcón**: Sierra de San Luis near Curimagua, alt. 1300 m, cultivated by *G. Bergold s.n.*, Dunsterville illustr. 1164.

When he described *M. striatella*, Reichenbach compared it to his *M. chloracra*, which was not published until after the former. The two descriptions represent forms of the same species. *Masdevallia striatella* is frequent in central Costa Rica. A questionable disjunct station has been reported from coastal Venezuela (a plant cultivated by G. Bergold).

Vegetatively, *M. striatella* is indistinguishable from most other species of the genus of the same size. The flower is characterized by the light greenish, purple-striped sepaline tube with three short, broad, thick, green tails. The petals possess a low, longitudinal callus along the labellar margin, and a pair of obtuse, marginal folds are present above the middle of the lip. In some specimens the folds are prominant, but in others they are reduced to low, oblique calli on the dorsum. The apex is minutely verrucose.

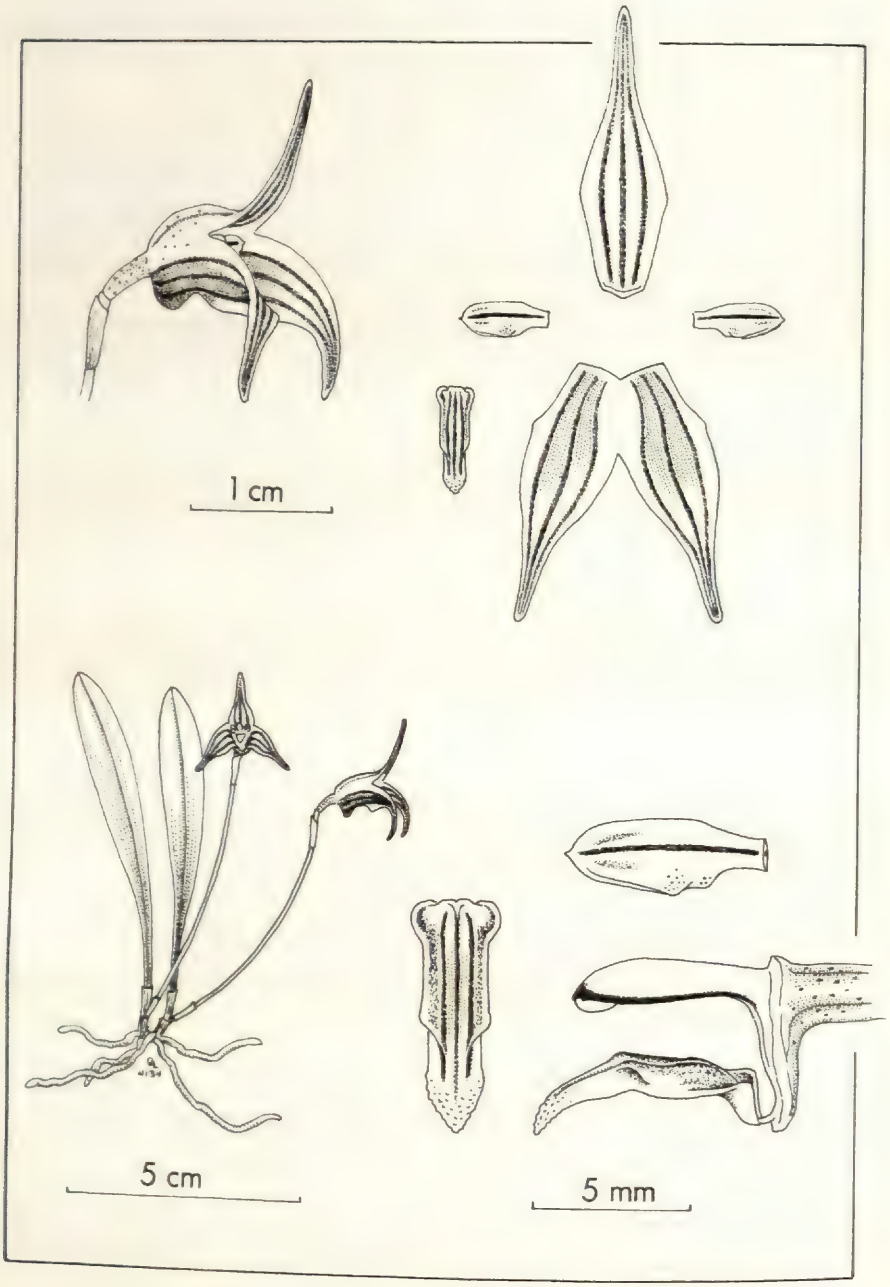



Plate 130. Masdevallia striatella

**Masdevallia thienii** Dodson, Selbyana 2: 54, 1977.

Ety.: Named in honor of Dr. Leonard B. Thien of New Orleans, LA, co-discoverer of this species.

**Plant** medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 9-14 cm long including the petiole 2-4 cm long, the blade elliptical, acute, 1.3-2 cm wide, the base cuneate into the channeled petiole. **Inflorescence** a subcongested, successively few-flowered raceme borne by a slender, more or less horizontal peduncle 9-20 cm long, with 3 distant bracts, from low on the ramicaul; floral bracts tubular, 8-9 mm long; pedicel 5 mm long; ovary 5 mm long; **sepals** glabrous, cream-colored, suffused with red-brown externally, suffused with red-brown and minutely verrucose above the middle within, the dorsal sepal obovate, 15 mm long, 7 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical tube, the free portion broadly triangular, the obtuse apex contracted into an erect, slender, yellow-orange tail 27 mm long, the lateral sepals ovate, oblique, connate 18 mm into a bifid lamina 22 mm long, 16 mm wide, forming a shallow, secondary mentum, with 2 pairs of pubescent convexities above the mentum, the acute apices contracted into slender, yellow-orange tails 18 mm long; **petals** light yellow, 7 mm long, 1.75 mm wide, the truncate apex lightly bilobed, the lower margin with a longitudinal callus developed into a thick, cylindrical, obtuse, retrorse appendage ca. 1 mm long between the middle and lower thirds; **lip** white, diffusely dotted with pink, oblong-subpandurate, 7.5 mm long, 2.75 mm wide, with obtuse marginal folds near the middle, the epichile suffused with orange-brown, oblong, rounded, verrucose, the hypochile oblong, the truncate base thickened, hinged beneath; **column** green, semiterete, 5.5 mm long, the foot 3 mm long including the incurved extension.

ECUADOR: **Pichincha**: epiphytic overhanging the river 4 km east of the road between Santo Domingo and Quevedo at km 28, alt. 300 m, 27 Oct. 1961, *C.H. Dodson & L.B. Thien 1133* (Holotype: SEL).
COLOMBIA: **Chocó**: alt. 100 m, 17 Jan. 1947, *O. Haught 5446* (US); Camilo, R. Escobar 831, cultivated at La Ceja by M. & O. Robledo, 1 Oct. 1977, *C. Luer 1879* (SEL); Río Samaná, alt. 800 m, collected by F. Villegas, cultivated by R. Escobar in Medellín, 13 Apr. 1988, *C. Luer 13179* (MO); Río Ura, alt. 200 m, collected by Seeger, cultivated at Heidelberg Botanical Garden, Aug. 1989, *C. Luer 14421* (MO).
PANAMA: **Chiriquí**: north of lake near Fortuna Dam, alt. 1150 m, 23 June 1986, *G. McPherson 9615* (MO).
COSTA RICA: **Alajuela**: San Ramón Reserva Alberto M. Brenes, alt. 850-900 m, 22 Oct. 1992, cultivated at Lankester Gardens, *C. Rodríguez s.n.* (USJ). **Puntarenas**: Río de Vuelta, near Carillo, 11 Jan. 1932, *W. Kupper 374* (M); without specific locality, collected by W. Ballesteros, 16 Mar. 1986, *C. Luer 12081* (MO).

This species is rare in the western lowlands of Colombia and Ecuador, but less rare in coastal Central America. In Ecuador it has not been seen since the original collection by Dodson and Thien in 1961. The long, slender, terete peduncle arises from near the base of a ramicaul, and the flowers are produced in slow succession in a short raceme. The sepals are connate into a sepaline tube about as long as the extended, connate blade of the lateral sepals. Within the orifice of the tube, two pairs of small, rounded convexities are present on the synsepal. The tails are slender; the petals possess a blunt, retrorse process between the middle and lower thirds; and the lip is partitioned by marginal folds.

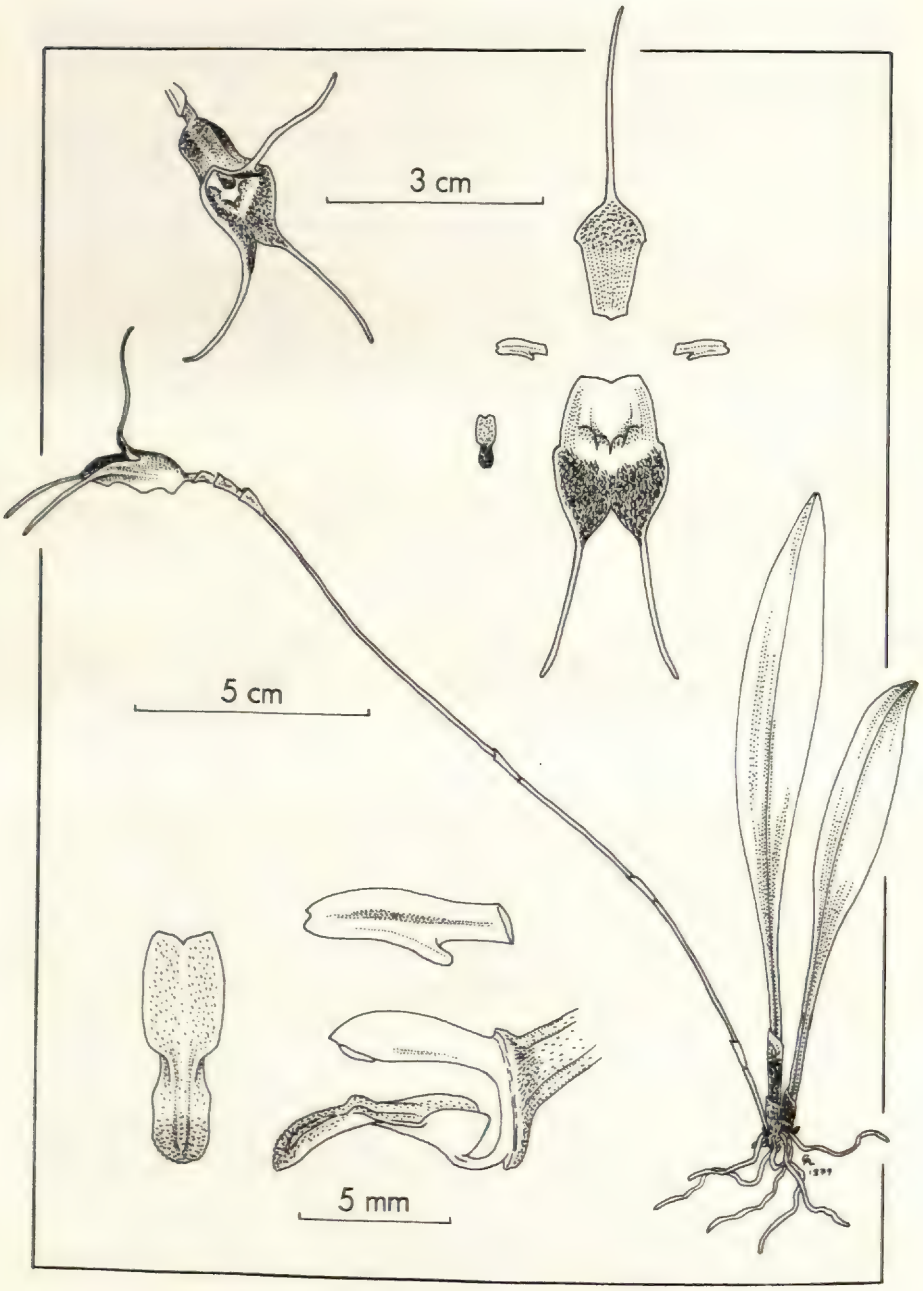



Plate 131. Masdevallia thienii

**Masdevallia wuerstlei** Luer, Monogr. Syst. Bot. 76: 154, 1999.

Ety.: Named in honor of Berthold Würstle of Spielberg, Germany, who cultivated this species for many years.

**Plant** large, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 3-5 cm long, enclosed by 2-3 close, thin, tubular sheaths. **Leaf** erect, thickly coriaceous, 9-17 cm long including the petiole 1.5-3 cm long, the blade narrowly elliptical, obtuse, 1.8-2.2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a loose, simultaneously several-flowered raceme up to 8 cm long, of long-pedicellate flowers, borne by a stout, terete peduncle 27 cm long, with a thin bract near the middle and at the base of the ramicaul; floral bracts thin, not imbricating, tubular, 15 mm long; pedicels 3-5 cm long, tortuous; ovary green, 3 mm long; **sepals** green, spotted with purple-brown, minutely verrucose within, the dorsal sepal obovate, 12 mm long, 7.5 mm wide, connate to the lateral sepals for 3.5-5 mm to form a short, gaping, sepaline cup, the apex obtuse, acuminate into a slender tail green tail 2.5 cm long, the lateral sepals ovate, oblique with recurved margins, 12-15 mm long, 9 mm wide, connate basally for 2 mm, the apices subacute, contracted into green tails 1-2.2 cm long; **petals** white, oblong, 6 mm long, 1.5 mm wide, the apex oblique, minutely biapiculate, the labellar margin with a low, longitudinal callus, more or less thicker below the middle; **lip** white, diffusely dotted or speckled with red-purple, oblong-subpandurate, 6 mm long, 2.25 mm wide, with obtuse, marginal folds above near the middle, the epichile ovate, obtuse, minutely apiculate with a keel beneath, minutely verrucose, the hypochile oblong, subtruncate at the base, hinged beneath; **column** white, with purple along the margin, semiterete, 6.5 mm long, the foot 4 mm long with an incurved extension.

COLOMBIA: Without collection data, obtained from Hubein, cultivated by B. Würstle at Spielberg, Germany, 29 August 1982, *C. Luer* 8129 (Holotype: SEL; Isotype: MO).

This species, obtained from a collector without data except for Colombia, has been in cultivation by Berthold Würstle for an unknown number of years. It has always produced loosely flowered racemes with long, tortuous pedicels. Except for being smaller with shorter tails, the flowers are similar to those of *M. medusa* from the Eastern Cordillera of Colombia.

*Masdevallia medusa* is characterized by a triquetrous peduncle and a congested raceme with imbricating floral bracts. The peduncle of the present plant is terete with a tubular bract near the middle, and with a loosely flowered raceme with rachis visible between floral bracts. The pedicels of both concepts are elongated, but those of *M. wuerstlei* are conspicuously twisted.

Whether or not this plant is an aberration of *M. medusa* is impossible to state for certain, but the terete peduncle is difficult to explain. *Masdevallia infracta*, characterized by a triquetrous peduncle, sometimes is found with a terete peduncle. However, the terete peduncle, together with the lax raceme, and tortuous pedicels, suggest specific differences.

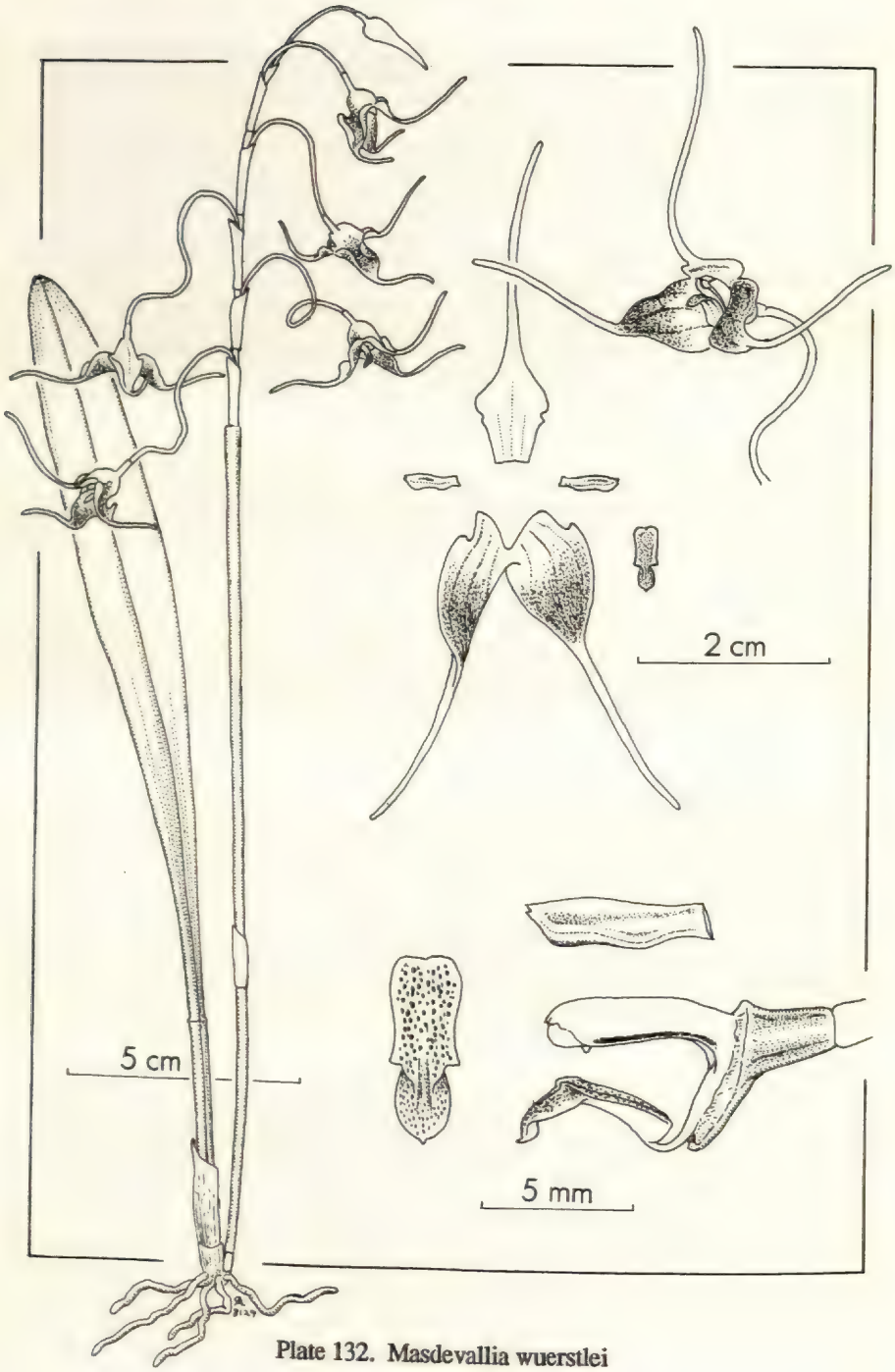



Plate 132. Masdevallia wuerstlei

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